



DEFENSE LOGISTICS AGENCY

DEFENSE SUPPLY CENTER, COLUMBUS
POST OFFICE BOX 3990
COLUMBUS, OH 43216-5000

IN REPLY
REFER TO

DSCC-VAI (Mr. Abdouni/614-692-0565)

18 March 2004

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Drafts of MIL-DTL-26482H Supplement 1, MIL-DTL-26482H, MS3110E, MS311D, MS3112H, MS3115F, MS3119E, MS3122F, MS3187E, MS3440C, MS3442C, MS3443B, MS3449C, MS3470E, MS3471E, MS3473B, MS3474J, MS3475E, MS3477B, MS3479C and MS3481A. Connectors, Electrical, Circular. Project Numbers 5935-4656, 5935-4656-001 through -019, and 5935-4656-099.

This letter is an initial draft notice of the subject documents. These documents are being revised to do the following:

- Incorporate amendment 6 into the basic specification.
- Update the format to current procedures.
- Remove references to canceled documents and add superceding documents.
- Cleaning up the drawings.

Please note that text that is bold is text that we are proposing to add to the documents. The bold feature will be removed in the published documents. Also, text that has a strikethrough line in it, is text that we are proposing to delete. It will be removed in the published documents.

These revisions will result in improved documents and lower cost parts.

The initial drafts of these documents are available for downloading from our web site at:

<http://www.dsccl.dla.mil/programs/milspec>

This draft is in the PDF format and requires Adobe Acrobat Reader to view and print it. If you do not have access to the Internet or otherwise are having trouble downloading this file, please contact us and we will provide you with a hard copy.

If this document is of interest to you, please submit your comments with justification, in electronic format only. Your comments should be received at our office within 45 days of the date of this letter. Any further coordination concerning this document will be circulated only to organizations and firms that furnish comments or reply that they have an interest.

If you require further information, please contact Mr. Abdonasser Abdouni at: 614-692-0565, fax: -6939 or e-mail: abdo.abdouni@dlamail.

Sincerely,

/Signed/

RICHARD L TAYLOR
Chief
Interconnection Devices Team



Note: This draft, dated 18 March 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-099.

INCH - POUND

MIL-DTL-26482H
SUPPLEMENT 1
DRAFT

DETAIL SPECIFICATION

CONNECTORS, ELECTRICAL, (CIRCULAR, MINIATURE, QUICK DISCONNECT, ENVIRONEMENT RESISTING), RECEPTACLES AND PLUGS, GENERAL SPECIFICATION FOR

This supplement forms a part of MIL-DTL-26482H, dated XXXXXXXXXXXX.

CONNECTORS, SOLDER CONTACT, BAYONET COUPLING (SERIES I)

- | | |
|--------|--|
| MS3110 | - Connectors, Receptacle, Electric, Series I, Solder Type, Wall Mounting, Flange, Bayonet Coupling. |
| MS3111 | - Connectors, Plug, Electric, Series I, Solder Type, Cable Connecting, Bayonet Coupling. |
| MS3112 | - Connectors, Receptacle, Electric, Series I, Box Mounting Flange, Bayonet Coupling, Solder Contact. |
| MS3113 | - Connectors, Receptacle, Electric, Series I, Solder Type, Solder Mounting, Bayonet Coupling. |
| MS3114 | - Connectors, Receptacle, Electric, Series I, Solder Type, Jam Nut Mounting, Bayonet Coupling. |
| MS3115 | - Connectors, Receptacle, Electric, Series I, Dummy Stowage, Bayonet Coupling. |
| MS3116 | - Connectors, Plug, Electric, Series I, Solder Type, Straight, Bayonet Coupling. |
| MS3119 | - Connectors, Receptacle, Electric, Series I, Thru-Bulkhead Mounting, Flange, Bayonet Coupling. |

CONNECTORS, CRIMP CONTACT, BAYONET COUPLING (SERIES I)

- | | |
|--------|--|
| MS3120 | - Connectors, Receptacle, Electric, Series I, Crimp-Type, Wall Mounting, Flange, Bayonet Coupling. |
| MS3121 | - Connectors, Plug, Electric, Series I, Crimp Type, Cable - Connecting, Bayonet Coupling. |
| MS3122 | - Connectors, Receptacle, Electric, Series I, Crimp-Type, Box Mounting, Flange, Bayonet Coupling. |
| MS3124 | - Connectors, Receptacle, Electric, Series I, Crimp-Type, Rear Mounting Jam Nut, Bayonet Coupling. |
| MS3126 | - Connectors, Plug, Electric, Series I, Crimp-Type, Straight, Bayonet Coupling. |
| MS3127 | - Connectors, Receptacle, Electric, Series I, Crimp-Type, Box Mounting, Flange, Bayonet Coupling. |
| MS3128 | - Connectors, Receptacle, Electric, Series I, Crimp-Type, Wall Mounting, Flange, Bayonet Coupling. |

MIL-DTL-26482H
SUPPLEMENT 1

CONNECTORS, SOLDER CONTACT, BAYONET COUPLING (SERIES 2)

- MS3440 - Connectors, Receptacle, Electric, Series 2, Narrow Flange Mount, Bayonet Coupling, Solder Pin Contact, Class H.
- P453442 - Connectors, Receptacle, Electric, Series 2, Wide Flange Mounting, Bayonet Coupling, Solder Pin Contact, Class H.
- MS3443 - Connectors, Receptacle, Electric, Series 2, Solder Flange Mount, Bayonet Coupling, Solder Pin Contact, Class H.
- P453449 - Connectors, Receptacle, Electric, Series 2, Single Hole Mount, Bayonet Coupling, Solder Pin Contact, Class H.

CONNECTORS, CRIMP CONTACT, BAYONET COUPLING (SERIES 2)

- MS3470 - Connectors, Receptacle, Electrical, Series 2, Crimp Type, Narrow Flange Mount, Bayonet Coupling, Classes L and A.
- MS3471 - Connectors, Receptacle, Electric, Series 2, Crimp Type, Cable Connecting, Bayonet Coupling, Classes L and A.
- MS3472 - Connectors, Receptacle, Electric, Series 2, Crimp Type, Wide Flange Mounting, Bayonet Coupling, Classes L and A.
- MS3473 - Connectors, Receptacle, Electric, Hermetic, Solderless Solder Mounting, Bayonet Coupling, Class N.
- MS3474 - Connectors, Receptacle, Electric, Series 2, Crimp Type, Rear Mounting Jam Nut, Bayonet Coupling, Classes L and A.
- MS3475 - Connectors, Plug, RH Shielded, Electric, Series 2, Crimp Type, Bayonet Coupling, Classes L and A.
- MS3476 - Connectors, Plug, Electric, Series 2, Crimp Type, Bayonet Coupling, Classes L and A.
- MS3477 - Connectors, Receptacle, Electric, Series 2, Hermetic, Solderless, Box Mounting, Bayonet Coupling, Class N.
- MS3479 - Connectors, Receptacle, Electric, Series 2, Hermetic, Solderless, Rear Mounting, Jam Nut, Bayonet Coupling, Class N.

CONNECTOR ACCESSORIES

- MS3152 - Strain Relief, Straight.
- MS3153 - Strain Relief, 45°.
- MS3154 - Strain Relief, 90°.
- MS3158 - Backshells For Heat-Shrinkable Boots.
- MS3180 - Cover, Protective, Electric Connector Plug, Bayonet Coupling.
- MS3181 - Cover, Protective, Electric Connector Receptacle, Bayonet Coupling.
- MS3184 - Adapter for Rear Mounting, Jam Nut, MIL-DTL-26482 Electric Connectors.
- MS3186 - Mot, Plain Slotted, Hexagon, Connector Mounting.
- MS3416 - Straight Backshell.
- MS3417 - Straight Strain Relief Clamp.
- MS3418 - 90° Strain Relief Clamp.
- MS3419 - RFI Backshell.

MIL-DTL-26482H
SUPPLEMENT 1

The following documents provide design details required for the fabrication of products in accordance with MIL-DTL-26482:

- MS3109 - Boots, Heat-Shrinkable, Strain-Relief, Straight.
- MS3117 - Boots, Heat-Shrinkable, Strain-Relief, Right Angle.
- MS3155 - Connector, Electric, Rear Accessory, Design Standard.
- MS3161 - Ring, Shield Crimp, For MS3419 Backshell.
- MS3187 - Plug, Sealing, For MIL-DTL-26482 and MIL-C-81703(NAVY) Electric Connectors.
- MS3447 - Tool, Insert-Extract, Wired Contact, Electric Connector, Size 20, 16, and 12.
- MS3448 - Tool, Extract, Unwired Contact, Electric Connector, Size 20, 16, and 12.
- MS3481 - Tool, Connector Assembly; For MIL-DTL-26482 Connectors.
- MS90376 - Caps, Dust, Plastic, Electric Connectors.
- MIL-STD-1669 - Insert Arrangements for MIL-DTL-26482 and MIL-DTL-83723, Series I, Electric, Circular, Connectors.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4656-099)

Review activities:
Army - AR, AV
Navy - EC, SH, TD
Air Force - 99

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656.

INCH - POUND

MIL-DTL-26482H
DRAFT
SUPERSEDING
MIL-C-26482G
3 May 2000

DETAIL SPECIFICATION

CONNECTORS, ELECTRICAL, (CIRCULAR, MINIATURE, QUICK DISCONNECT, ENVIRONMENT RESISTING), RECEPTACLES AND PLUGS, GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

Inactive for new design as of 15 December 1998.

1. SCOPE

1.1 **Scope.** This specification covers the general requirements for two series of environment resisting, quick disconnect, miniature, circular electrical connectors (and accessories). Each series contains hermetic receptacles. The two series of connectors are intermateable when using power contacts and are not intermateable when using shielded contacts. When intermated, the minimum performance requirement for series 1 connectors will be met.

1.1.1 **Marking.** The launcher receptacle, store receptacle, buffer plug unit, and accessories should be permanently marked with the manufacturer's name or trademark, date code, and the following information, as applicable. Stamping should be in accordance with MIL-STD-1285 where space permits. The following is an example of the Part or Identifying Number (PIN):

	<u>MS3114</u>	<u>E</u>	<u>12</u>	<u>*</u>	<u>10</u>	<u>A</u>	<u>P</u>	<u>Y</u>
MS number _____ (see supplement)								
Class _____ (see 1.2.1)								
Shell size _____ (see 1.2.2)								
Termination type & shell material _____ (see 1.2.3)								
Insert arrangement _____ (see 1.2.4)								
Insert arrangement for shielded contacts _____ (see 3.1, omit if not applicable)								
Contact style _____ (see 1.2.5)								
Polarization position _____ (see 1.2.6)								

* For hermetic receptacles only.

Comments, suggestions, or questions on this document should be addressed to Defense Supply Center Columbus, ATTN: VAI, P.O. Box 3990, Columbus OH 43216-5000 or emailed to circularconnector@dsccl.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://www.dodssp.daps.mil>.

MIL-DTL-26482H

1.1.2 Series description. The connectors are identified as series 1 or 2 and are designed to provide contact protection during mating.

- a. Series 1 – Connector, bayonet coupling, solder or front release crimp removable contacts (125°C). Series 1, hermetic are also available. (See 6.1 for intended use.)
- b. Series 2 – Connector, bayonet coupling, rear release crimp removable contacts (200°C), **(classes H, N, and W, 175°C)**. Series 2, hermetic connectors are available with nonremovable solder type contacts or crimp removable terminations. (See 6.2 for intended use.) ~~(MIL-C-83723/1 through /14 and MIL-C-83723/36 through /49 must meet the performance requirements of series 2.)~~

1.2 Classification.

1.2.1 Class. The class and series of connectors shall be identified as shown in table I.

TABLE I. Connector class and series.

Class	Series 1 (125°C)		Series 2 (200°C)		Series 2 (175°C)
	Solder	Front release crimp removable contacts	Rear release crimp removable contacts	Solder	Rear release crimp removable contacts
A-Grommet seal, nonconductive			X		
E-Grommet seal, conductive	X	X	<u>1/</u>		
P-Potted seal, conductive	X	X			
H-Hermetic seal, conductive	X			X	
J-Insert seal with gland seal for jacketed cable, conductive	X				
L-Fluid resistant, conductive electroless nickel <u>1/ 2/</u>			X		
N-Hermetic seal, crimp termination conductive					X
F-Grommet seal with strain relief clamp conductive	X	X			
W-Cadmium plate, corrosive and fluid resistant, conductive					X

1/ Class L is upgraded to 200°C and replaces class E, series 2, rear release, crimp removable contacts.

2/ Class L is for space applications only.

1.2.2 Shell size. Shell sizes shall be as specified on the applicable MS standard.

1.2.3 Termination type and shell material (hermetic receptacles only). The type of termination and shell material shall be designated as follows:

Type A – Solder cup termination – stainless steel shell (**series 1 and 2**).

Type B – Eyelet termination – stainless steel shell (**series 1 and 2**).

Type C – Solder cup termination – ferrous alloy shell (series 1 and 2).

Type D – Crimp termination – ferrous alloy shell (series 2).

Type Y – Eyelet termination – ferrous alloy shell (series 1).

1.2.4 Insert arrangement. The insert arrangement showing quantity, size, service rating, and positional location of contacts shall be as specified in MIL-STD-1669.

1.2.5 Contact style:

- (a) Connectors ordered with standard contact arrangement as indicated in MIL-STD-1669 are as follows:

C - Feedthrough contact.

P - Pin contacts.

S - Socket contacts.

The C, P, and S designators are used to indicate that connectors will be used with full compliments of the applicable standard contacts as indicated in MIL-STD-1669.

The connectors that accommodate crimp removable contacts (P and S) may be ordered without standard contacts by adding an appropriate note on the purchase order; however, the connector part numbers and the marking requirements remain unchanged (see 6.3).

- (b) Connectors used with other than standard contact arrangements as indicated in MIL-STD-1669 are as follows:

A - Less pin contacts

B - Less socket contacts.

The A or B designators are used to indicate that the connectors will be used with other than standard contacts as indicated in MIL-STD-1669 (example: shielded, coaxial thermocouple, fiber optic contacts). The A and B designators are part of the connector part numbers and shall be marked on the connectors.

The standard contacts shall not be supplied with the connectors. The contacts that will be used with the connectors must be ordered separately (see 3.7.1, 3.7.4, and 6.3).

Note: When other than standard power contacts are used, the requirements stated herein may not be met.

1.2.6 Insert position. The insert position is the angular position of the insert relative to the master key or keyway of the shell. Insert positions other than normal shall be indicated by the letter shown on the insert arrangements specified in MIL-STD-1669.

1.2.7 Military part number. The military part number for qualified MIL-DTL-83723, series 1 connectors provided in accordance with this specification shall conform to the issue in effect of MIL-DTL-83723 and 1.2.1 herein (see 3.7.4 for identification).

1.3 Temperature.

1.3.1 Temperature (series 1). Series 1 connectors are rated for specified operation within a temperature range of -55°C (-67°F) to 125°F (257°F). The upper temperature is the maximum internal hot spot temperature resulting from any combination of electrical load and ambient temperature.

1.3.1.1 Insulation resistance (series 1). Insulation resistance varies with temperature as follows (see figure 1A):

<u>Hot spot temperature</u>	<u>Minimum insulation resistance</u>
25°C (77°F)	5,000 megohms
105°C (221°F)	12 megohms
125°C (257°F)	3 megohms

1.3.1.2 Service life (series 1). Service life varies with temperature as follows (see figure 1B):

<u>Hot spot temperature</u>	<u>Service life</u>
25°C (77°F)	continuous
105°C (221°F)	1,000 hours
125°C (257°F)	250 hours

1.3.2 Temperature (series 2). Series 2 connectors are capable of specified operation within a temperature range of -55°C (-67°F) to 200°C (392°F) under any combination of electrical load and ambient temperature. These connectors are rated for specified operation for 1,000 hours, at 200°C maximum internal hot spot temperature.

1.3.2.1 Insulation resistance (series 2). Insulation resistance limits vary with temperature as follows (see figure 2A):

<u>Hot spot temperature</u>	<u>Minimum insulation resistance</u>
25°C (77°F)	5,000 megohms
200°C (392°F)	500 megohms

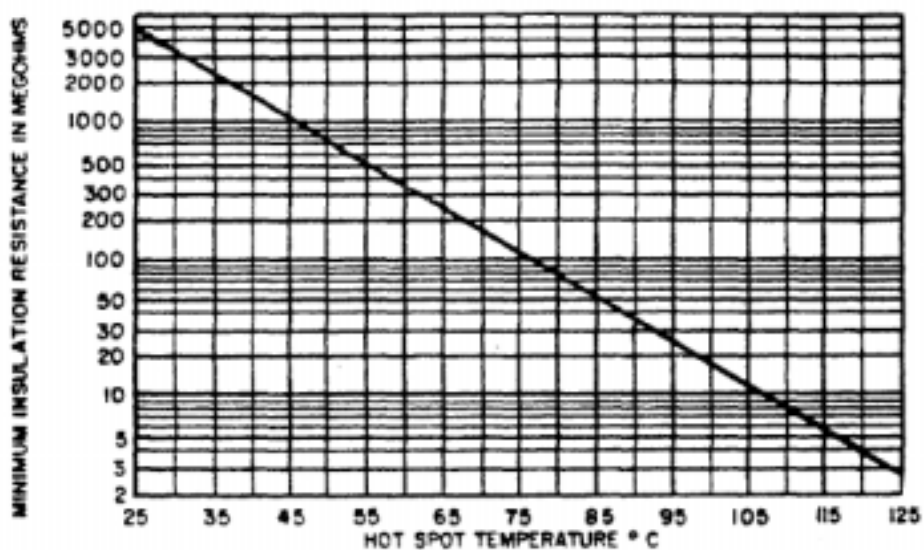
1.3.2.2 Service life (series 2). Service life varies with temperature as follows (see figure 2B):

<u>Hot spot temperature</u>	<u>Service life</u>
25°C (77°F)	continuous
200°C (392°F)	1,000 hours

1.4 Wire range accommodations. The wire range given in table II shall be accommodated by series 1 and series 2 connectors as indicated.

TABLE II. Wire range accommodations.

Wire Barrel Size	Wire Size	OD of finished wire, inch <u>1/</u>			
		Series 1		Series 2	
		Min	Max	Min	Max
20	24	.047 <u>2/</u>	.083	.040	.083
	22				
	20				
16	20	.066	.109	.053	.103
	18				
	16				
12	14	.097	.142	.097	.158
	12				

1/ Wire reference – MIL-W-227592/ Minimum OD for solder contact connectors is .060 inch.FIGURE 1A. Minimum insulation resistance vs hot spot temperature.FIGURE 1. Insulation resistance and service life vs temperature (series 1).

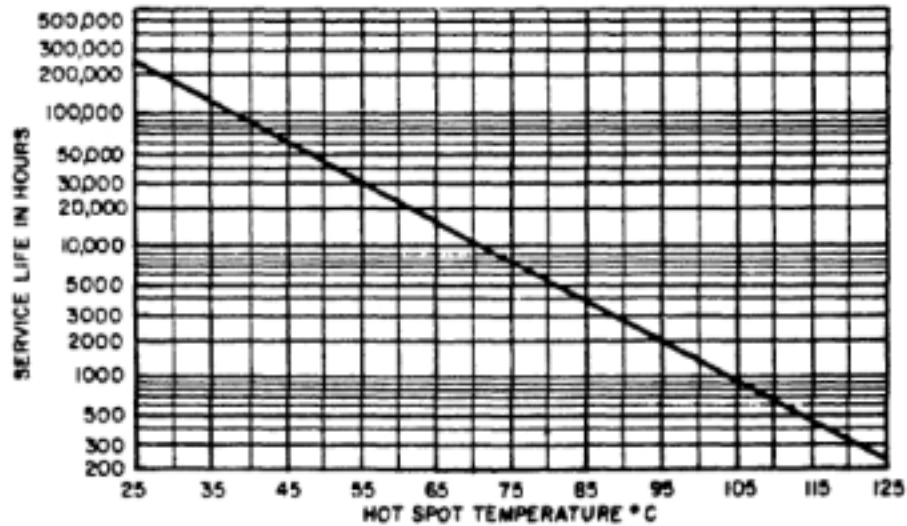


FIGURE 1B. Service life vs hot spot temperature.

FIGURE 1. Insulation resistance and service life vs temperature (series 1) - Continued.

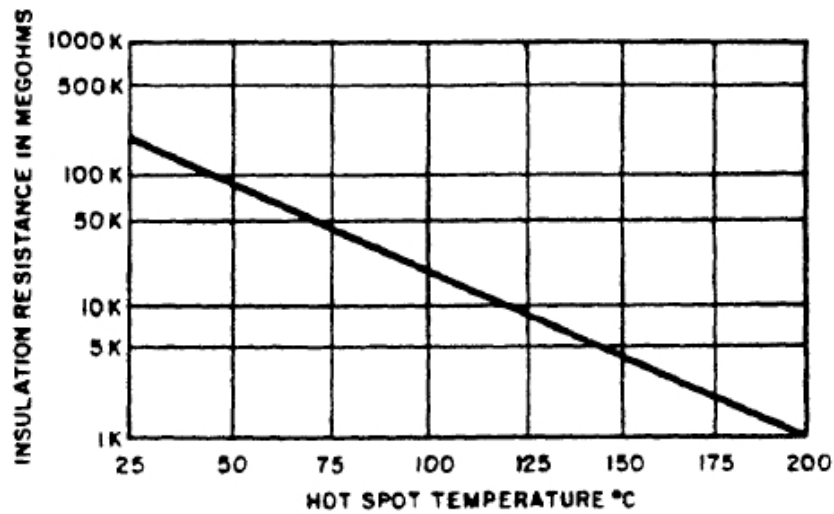
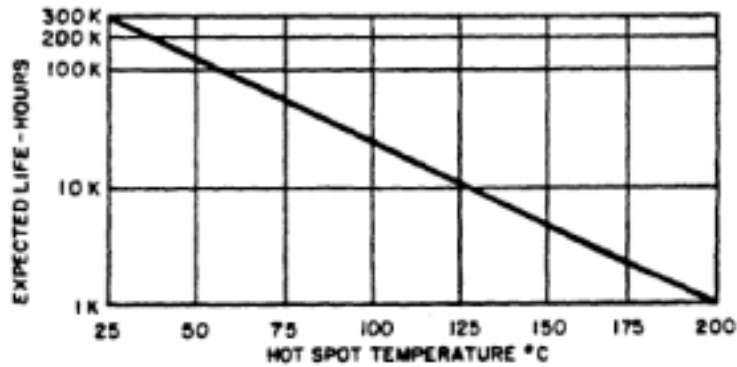


FIGURE 2A. Typical insulation resistance vs hot spot temperature.

FIGURE 2. Insulation resistance and service life vs temperature (series 2).

FIGURE 2B. Service life vs hot spot temperature.FIGURE 2. Insulation resistance and service life vs temperature (series 2) - Continued.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for addition information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-M-14	- Molding Plastics and Molded Plastic Parts, Thermosetting.
MIL-G-3056	- Gasoline, Automotive, Combat.
MIL-H-5606	- Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordnance.
MIL-T-5624	- Turbine Fuel, Aviation, Grades JP-4 and JP-5.
MIL-L-7808	- Lubricating Oil, Aircraft Turbine Engine, Synthetic Base.
MIL-A-8243	- Anti-icing and Deicing-Defrosting Fluid.
MIL-S-8516	- Sealing Compound, Polysulfide Rubber, Electric Connectors and Electric Systems, Chemically Cured.
MIL-T-10727	- Tin Plating, Electrodeposited or Hot-Dipped, for Ferrous and Nonferrous Metals.
MIL-F-14072	- Finishes for Ground Signal Equipment.

MIL-DTL-26482H

MIL-I-17214	- Indicator, Permeability, Low-Mu (Go-N-Go).
MIL-M-20693	- Molding Plastic, Polyamide (Nylon), Rigid.
MIL-DTL-22520	- Crimping Tools, Terminal, Hand, Wire Termination, General Specification for.
MIL-W-22759	- Wire, Electric, Fluoropolymer-Insulated, Copper or Copper Alloy.
MIL-C-23246	- Contacts, Electric Connector, General Specification for.
MIL-L-23699	- Lubricating Oil, Aircraft Turbine Engines, Synthetic Base.
MIL-C-25760	- Cleaning Compound, Aircraft Surface, Alkaline Waterbase.
MIL-C-39029	- Contact, Electrical Connector, General Specification For
MIL-C-39029/4	- Contacts, Electric, Pin, Crimp Removable, Composition A.
MIL-C-39029/5	- Contacts, Electric, Socket, Crimp Removable, Composition A.
MIL-C-39029/7	- Contacts, Electric, Connector, Pin, Crimp Removable, Composition D, Type 3 (200°C), Shielded Cable Applications, Size 12.
MIL-C-39029/8	- Contacts, Electric, Connector, Socket, Crimp Removable, Composition D, Type 3 (200°C), Shielded Cable Applications, Size 12.
MIL-C-39029/9	- Contacts, Electric, Pin, Crimp Removable, Composition C, Thermocouple.
MIL-C-39029/10	- Contacts, Electric, Socket, Crimp Removable, Composition C, Thermocouple.
MIL-C-39029/15	- Contacts, Electric, Socket, Crimp Removable, Composition A
MIL-C-39029/22	- Contacts, Electrical, Connector, Socket, Crimp Removable (For MIL-T-81714 Terminal Junction System Series II And MIL-C-81511 Series 3 And 4 Class L Connectors).
MIL-C-39029/23	- Contacts, Electric, Pin, Shielded, Crimp, Removable (Size 8).
MIL-C-39029/24	- Contacts, Electric, Socket, Shielded, Crimp, Removable (Size 8).
MIL-C-39029/25	- Contacts, Electric, Pin, Shielded, Crimp, Removable, Composition A, 200°C (Size 12).
MIL-C-39029/26	- Contacts, Electric, Socket, Shielded, Crimp, Removable (Size 12).
MIL-C-39029/31	- Contact, Electrical Connector, Pin, Crimp Removable, (For MIL-C-26482 Series 1, MIL-C-26500 and MIL-C-26518 Connectors).
MIL-C-39029/32	- Contacts, Electrical Connector, Socket, Crimp Removable, (For MIL-C-26482 Series 1, and MIL-C-26500 Connectors).
MIL-G-45204	- Gold Plating, Electrodeposited.
MIL-C-45662	- Calibration System Requirements.
MIL-P-46133	- Plastic Molding and Extrusion Material, Poly (Argyl Sulfone Ether) Resin, Thermoplastic.
MIL-C-55330	- Connector, Electrical & Fiber Optic, Packaging Of.
MIL-I-81969/14	- Installing And Removal Tools, Connector Electrical Contact, Type III, Class 2, Composition B
MIL-I-81969/17	- Installing And Removal Tools, Connector Electrical Contact, Type I, Class 1, Composition C
MIL-I-81969/19	- Installing And Removal Tools, Connector Electrical Contact Type II, Class 1, Composition C
MIL-I-81969/30	- Installing And Removal Tools, Connector Electrical Contact, Type II, Class 2, Composition C
MIL-DTL-83723	- Connector, Electrical (Circular, Environment Resisting), Receptacles And Plugs, General Specification For.
MIL-PRF-87937	- Cleaning Compound, Aerospace Equipment

MIL-DTL-26482H

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-105	- Sampling Procedures and Table for Inspection by Attributes.
MIL-STD-202	- Test Methods for Electronic and Electrical Component Parts.
MIL-STD-454	- Standard General Requirements for Electronic Equipment.
MIL-STD-810	- Environmental Engineering Considerations and Laboratory Tests.
MIL-STD-889	- Dissimilar Metals.
MIL-STD-1285	- Marking of Electrical and Electronic Parts.
MIL-STD-1344	- Test Methods for Electrical Connectors.
MIL-STD-1669	- Insert Arrangements for MIL-C-26482 Environment Resisting, Circular Electrical Connectors.
MS3112	- Connectors, Electrical, (Circular, Miniature, Quick Disconnect, Environment Resisting), Receptacle, (Box Mounting Flange, Bayonet Coupling, Solder Contact), (Series 1).
MS3119	- Connectors, Electrical, (Circular, Miniature, Quick Disconnect, Environment Resisting), Receptacle, (Thru-Bulkhead Mounting Flange, Bayonet Coupling), (Series 1).
MS3122	- Connectors, Receptacle, Electric, Crimp-Type, Box Mounting, Flange, No. 4 Holes, Bayonet Coupling.
MS3127	- Connectors, Receptacle, Electric, Crimp-Type, Box Mounting, Flange, No. 4/6 Holes, Bayonet Coupling.
MS3155	- Connector, Electric, Rear Accessory Design Standard.
MS3187	- Plug, Sealing, For MIL-C-26482 and MIL-C-81703 (Navy) Electrical Connectors.
MS3192	- Contacts, Pin, Electric, Crimp, Removable.
MS3193	- Contacts, Socket, Electric, Crimp Removable.
MS3197	- Gage Pin, for Socket Contact Engagement Test.
MS3448	- Tool, Extract, Unwired Contact, Electrical Connector, Size 20, 16, and 12.
MS3460	- Test Gage, MIL-C-26482 Series 1 or MIL-C-81703 Series 2 Contact Retention Feature.
MS3461	- Test Gage, MIL-C-26482 Series 2 or MIL-C-81703 Series 3 Contact Retention Feature.
MS3462	- Test Gage, MIL-C-26482, Series 2 (Class N) or MIL-C-81703 Series 3 (Class N) Contact Retention Feature.
MS24256	- Tool, Contact, Connector, Assembly and Disassembly.
MS27488	- Plug, Sealing, Electric Connector.
MS27534	- Tool, Contact Insertion-Extraction, Electrical Connector.
MS90376	- Caps, Dust, Plastic, Electrical Connector.

(See supplement for associated list of specification sheets and military standards).

FEDERAL STANDARDS

L-P-395	- Plastic Molding (And Extrusion) Material, Nylon, Glass Fiber Reinforced.
QQ-A-591	- Aluminum Alloy Die Castings.
QQ-N-290	- Nickel Plating (Electrodeposited).
QQ-P-35	- Passivation Treatments For Corrosion-Resisting Steel.
QQ-P-416	- Plating, Cadmium (Electrodeposited).
QQ-S-571	- Solder, Tin Alloy: Tin Lead Alloy; and Lead Alloy.
QQ-S-763	- Steel Bar Wire, Shape & Forging, Corrosion Resisting.

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or <http://www.dodssp.daps.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are cited in the solicitation or contract.

NATIONAL BUREAU OF STANDARDS

- | | | |
|---------------------|---|---|
| H-28 HANDBOOK | - | Screw-Thread Standards for Federal Services. |
| MIL-HDBK-454 | - | General Guidelines For Electronic Equipment. |

(Applications for copies should be addressed to: Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.)

- | | | |
|------|---|-------------------------------------|
| SD-6 | - | Provisions Governing Qualification. |
|------|---|-------------------------------------|

(Applications for copies should be addressed to: Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.)

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | | |
|--------------------|---|---|
| NCSL Z540.1 | - | Laboratories, Calibration, And Measuring And Test Equipment. |
| ANSI B46.1-1962 | - | Surface Texture (Surface Roughness, Waviness and Lay). |
| ANSI Y14.5-1973 | - | Dimensioning and Tolerancing. |
| ANSI C83.1(RS-359) | - | Standard Colors for Color Identification and Coding. |
| J-STD-004 | - | Soldering Fluxes Requirements For. |
| J-STD-005 | - | Soldering Pastes Requirements For. |
| J-STD-006 | - | Electronic Grade Solder Alloys And Fluxed And Non-Fluxed Solid Solders For Electronic Soldering Applications Requirements For. |

(Application for copies should be addressed to the American National Standards institute, 25 West 43rd Street, 4th Floor, New York, New York 10036.)

ASTM INTERNATIONAL

- | | | |
|-------------------|---|--|
| ASTM B85 | - | Aluminum-Alloy Die Castings. |
| ASTM B339 | - | Pig Tin. |
| ASTM A342 | - | Materials, Feebly Magnetic, Permeability Of. |
| ASTM B545 | - | Tin, Electrodeposited Coatings Of. |
| ASTM D4066 | - | Nylon Injection And Extrusion Materials (Pa). |
| ASTM D4814 | - | Fuel, Automotive Spark-Ignition Engine. |
| ASTM D5948 | - | Compounds, Molding, Thermosetting. |

(Copies of these documents are available at <http://www.astm.org> or ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, Pennsylvania 19428-2959.)

ELECTRONIC INDUSTRIES ALLIANCE (EIA)

- EIA-364** - **Electrical Connector/Socket Test Procedures Including Environment Classifications –Revision of EIA-364-c.**

(Copies of these documents are available online at <http://www.eia.org> or from the Electronic Industries Alliance, Technology Strategy & Standards Department, 2500 Wilson Boulevard, Arlington VA 22201.)

SAE INTERNATIONAL

- | | | |
|-------------------------|---|--|
| SAE-AMS1424 | - | Fluid, Deicing/Anti-Icing, Aircraft, Sae Type I. |
| SAE-AMS2422 | - | Plating, Gold. |
| SAE-AS31971 | - | Pin, Gage, For Socket Contact Engagement Test. |
| SAE-AS90376 | - | Cap, Dust, Plastic, Electric Connector. |
| SAE-AMS-QQ-N-290 | - | Nickel Plating (Electrodeposited). |
| SAE-AMS-QQ-P-416 | - | Plating, Cadmium (Electrodeposited). |
| SAE-AMS-QQ-S-763 | - | Steel Bars, Wire, Shapes, And Forgings; Corrosion Resistant. |
| SAE-AIR 4789 | - | Evaluating Corrosion Testing of Electrical Connectors and Accessories for the Purpose of Qualification. |
| SAE-AS85049 | - | Connector Accessories, Electrical General Specification For. |

(Copies of these documents are available at <http://www.sae.org> or SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-001.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, or specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 MS standards. The individual item requirements shall be as specified herein and in accordance with the applicable MS standard. In the event of any conflict between the requirements of this specification and the MS standard, the latter shall govern.

3.2 Qualification. The connectors furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.3 and 6.5).

Upon application for qualification testing, the qualifying activity shall verify that the manufacturer has established written procedures to assure actual connector performance to the requirements of this specification. Emphasis shall be on the molded plastic retention system piece parts prior to assembly into the connector. These procedures shall contain:

- a. Analysis of minimum/maximum dimensions of contacts and molded plastic retention discs.
- b. Acceptable levels for:
 - (1) Plastic mixtures and chemical tests.
 - (2) Purity of materials.
 - (3) Flash control in plastic parts.
 - (4) Method for flash removal.

- c. Contact retention tests on molded plastic retention disc based on analysis of (a).
- d. Insertion and removal forces for pin and socket contacts in plastic disc.

When approved by the qualifying activity, these shall become the minimum requirements for molded plastic contact retention systems prior to assembly into connectors for that manufacturer.

3.3 Materials. Materials which are not specified (see 3.1), or which are not specifically described herein shall be of the lightest practical weight and shall be suitable for the purpose intended.

3.3.1 Fungus resistance. Materials used in the construction of these connectors shall be fungus inert (see 4.1.3).

3.3.2 Dissimilar metals. When dissimilar metals are used in intimate contact with each other, protection against galvanic corrosion shall be provided. The use of dissimilar metals in contact, which tend toward active galvanic corrosion (particularly brass, copper, or steel used in contact with aluminum or aluminum alloy) is not acceptable. However, metal plating of dissimilar base metals to provide similar or suitable abutting surfaces is permitted. The use of dissimilar metals separated by a suitable insulating material is also permitted. Dissimilar metals and compatible couples are defined in MIL-STD-889.

3.3.3 Nonmagnetic materials (except class H and N). The relative permeability of the connector assembly shall be less than 2.0 when measured with an indicator conforming to **ASTM A342 MIL-17244**.

3.3.4 Contact material.

3.3.4.1 Series I (except class H). **Nonremovable contacts shall be made of suitably conductive materials**. Hoods shall be made of passivated stainless steel. Springs shall be suitably protected or made from noncorrosive materials.

3.3.4.2 Classes H and N. Contacts shall be made of ferrous alloy or as specified. The materials used shall be compatible with the requirements of this specification.

3.3.5 Contact finish.

3.3.5.1 Series 1 solder contact finish (except class H). Nonremovable contacts shall have a finish as specified in 3.3.5.1.1 or 3.3.5.1.2. Each desired finish shall be qualified.

3.3.5.1.1 Overall finish. Contact body shall be gold plated in accordance with SAE-AMS2422, type II, grade C, class 1 (0.000050 minimum), over a suitable underplate except silver shall not be used. Accessory members of the socket contacts need not be plated, but shall comply with the requirements for dissimilar metals specified in 3.3.2.

3.3.5.1.2 Localized finish. Contact body shall have gold in accordance with SAE-AMS2422 ~~MIL-G-45204~~, type II, grade C, class 1 applied to areas X and Y (see figure 5), as applicable. All other body surfaces shall be finished with gold in accordance with SAE-AMS2422, any type and grade (no thickness specified). The entire surface of the contact body shall be nickel underplated in accordance with SAE-AMS-QQ-N-290, class 2, 0.00003 to .00015 inch thick. Gold discoloration in areas other than X and Y is acceptable.

3.3.5.2 Series 1 and 2, class H.

3.3.5.2.1 Types A and B, and type C (series 2). Nonremovable contacts shall be gold plated to a minimum of 50 microinches in accordance with SAE-AMS2422, over a suitable underplate except silver shall not be used.

3.3.5.2.2 Types C and Y (series 1). Contact plating for class H, types C and Y, shall be 50 microinches minimum of electrodeposited tin (no organic brightener) in accordance with ASTM B339 and ASTM B545 MIL-T-40727. A preliminary plating of another metal is permissible.

3.3.6 RFI finger spring. RFI finger springs shall be made of a spring temper copper alloy suitably protected to prevent corrosion.

3.3.7 Dielectric materials.

3.3.7.1 Insert and grommet. Insert and grommet materials shall be high grade dielectric having hardness, electrical, and mechanical characteristic suitable for the purpose intended.

3.3.7.1.1 Rigid (except classes H and N). Rigid dielectric materials shall be high grade having electrical and mechanical characteristics suitable for the purpose intended. The impact strength shall be such that the material shall not chip, crack, or break during assembly or normal service.

3.3.7.1.2 Rigid (classes H and N). The rigid dielectric materials in hermetic connectors shall be of a single piece of vitreous material.

3.3.7.1.3 Resilient. Resilient dielectric materials shall conform to the requirements specified herein. The resilient faces of series 1 and 2 connectors shall be designed so that the performance requirements are met when mated to counterpart connectors of either series 1 or 2.

3.3.7.1.4 Insert faces (series 1). Insert faces or blankets to a minimum depth of 0.080 inch (0.033 inch on class H) shall be resilient within a Shore A range of 35-85 for crimp contact connectors and class H connectors and 65-85 for solder contact connectors.

3.3.7.1.5 Pin insert faces (series 2). Pin insert faces shall be resilient within a Shore A range of 30 to 55.

3.3.8 Potting form (series 1). Potting forms shall be made of translucent nylon. The form shall incorporate a means for attachment to the connector.

3.3.9 Material and finish for shells, coupling rings and metallic accessories.

3.3.9.1 Series 1 (except class H). Shells, coupling rings, and protective covers shall be made of high grade aluminum alloys. Die castings, if used, shall conform to composition **No. 413.0, 518.0, 380.0, 384.0, A380.0, or A413.0** of SAE-AMS-QQ-A-591.

3.3.9.2 Shells, coupling rings, and accessories (backshells) (series 2).

(a) Shells, coupling rings, and accessories shall be made of impact extruded, machined or die-cast aluminum alloy.

(b) Accessories (backshells) shall be in accordance with SAE-AS85049.

3.3.9.3 Shells (classes H and N). Shell materials shall be as specified (see 3.1).

3.3.9.4 Finish (series 1 except class H). Aluminum parts and external screws shall be cadmium plated in accordance with type II, class 3 of **SAE-AMS-QQ-P-416**, except that a preliminary plating of another metal is permissible. The resulting finish shall be olive drab (light to dark) and shall be electrically conductive.

3.3.9.4.1 Ferrous alloy (series 1, class H). Shells shall be tin plated in accordance with **ASTM B339 and ASTM B545 type 1 or 2 of MIL-T-10727**. Preliminary plating of another metal is permissible. The resultant finish shall be suitable for soft soldering to a mounting surface.

3.3.9.5 Finish (series 2, classes H, L, R, and N). The finish of the shells and accessories shall be electrically conductive. Metal parts shall be of a corrosion resistant material or be protected to meet the performance requirements of this specification. Cadmium plating shall not be acceptable as a conductive finish.

3.3.9.6 Finish (series 2). Metal parts shall be of a corrosion resistant material or be protected to meet the performance requirements of this specification. The type of finish and class designation shall be as follows:

- | | |
|------------------------|---|
| Classes H and N | - .0001 inch minimum tin in accordance with ASTM B339 and ASTM B545 over nickel in accordance with SAE-AMS-QQ-N-290. |
| Class L | - Electrically conductive, electroless nickel plating conforming to MIL-C-26074, class 3 for molded/extruded alloy and class 4 for heat treated alloys, grade B, finish shall withstand 48 hours salt spray test. Use of a suitable under plate is permissible. |
| Class W (175°C) | - Cadmium plate in accordance with SAE-AMS-QQ-P-416 over a suitable underplate to withstand 500 hours salt spray. Resultant color to be olive drab, conductive. |
| Class A | - Hard, anodic, nonconductive in accordance with MIL-A-8625, type III, .0008 inch minimum thick. |

~~3.3.9.7 Corrosion resistant steel (finish). The finish for corrosion resistant steel shells shall be passivated in accordance with QQ-P-35.~~

3.3.10 Bayonet pins. Bayonet pins shall be made of passivated stainless steel in accordance with SAE-AMS-QQ-S-763.

3.4 Design and construction. Connectors and accessories shall be designed and constructed to withstand normal handling incident to installation and maintenance in service. Connector interchangeability control dimensions shall be as specified on figure 3. Rear accessory interchangeability control dimensions of series 2 connectors shall be as specified on figure 4.

3.4.1 Contacts. Contacts shall be so designed that neither the pins **nor** the sockets will be damaged during mating of counterpart connectors. A quantity of crimp contacts consisting of the normal complement, plus one spare contact for connector arrangements having 26 contacts or less and two spares for arrangements over 26 contacts shall be included in the unit package. Unless otherwise specified, connectors shall be supplied with contacts (**see 1.2.1.5 and 6.3**).

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3.4.1.1 Solder contacts (series 1). Solder contacts shall conform to the dimensions on figure 5 and shall be nonremovable from the insert. Solder cups shall be so designed that during soldering no components will be damaged. A vent hole or equivalent may be provided to prevent air entrapment during soldering.

3.4.1.2 Crimp contacts (series 1).

3.4.1.2.1 Crimp power contacts. Crimp power contacts shall conform to MIL-C-39029/31 or MIL-C-39029/32 and shall be qualified to MIL-C-39029.

3.4.1.2.2 Crimp shielded contacts. Size 8 shielded contacts shall be qualified to MIL-C-39029/23 or MIL-C-39029/24. Size 12 shielded contacts shall be qualified to MIL-C-39029/25 or MIL-C-39029/26. Unless otherwise specified, shielded contacts shall not be supplied with the connector (see 6.3).

3.4.1.2.3 Insertion and removal tools (series 1). The individual contacts shall be positively retained in the connector when installed with the applicable **contact insertion tools of MIL-I-81969/17 and MIL-I-81969/19 MS24256-A20, MS24256-B20, MS24256-A16, or MS24256-A12 contact insertion tool**. The individual contacts shall be capable of being removed from the connector when using the applicable **contact removal tools of MIL-I-81969/17 and MIL-I-81969/19 MS24256-R20, MS24256-R16, or MS24256-R12 contact removal tool**. ~~Unless otherwise specified, connectors shall be supplied with insertion and removal tools (see 6.3).~~

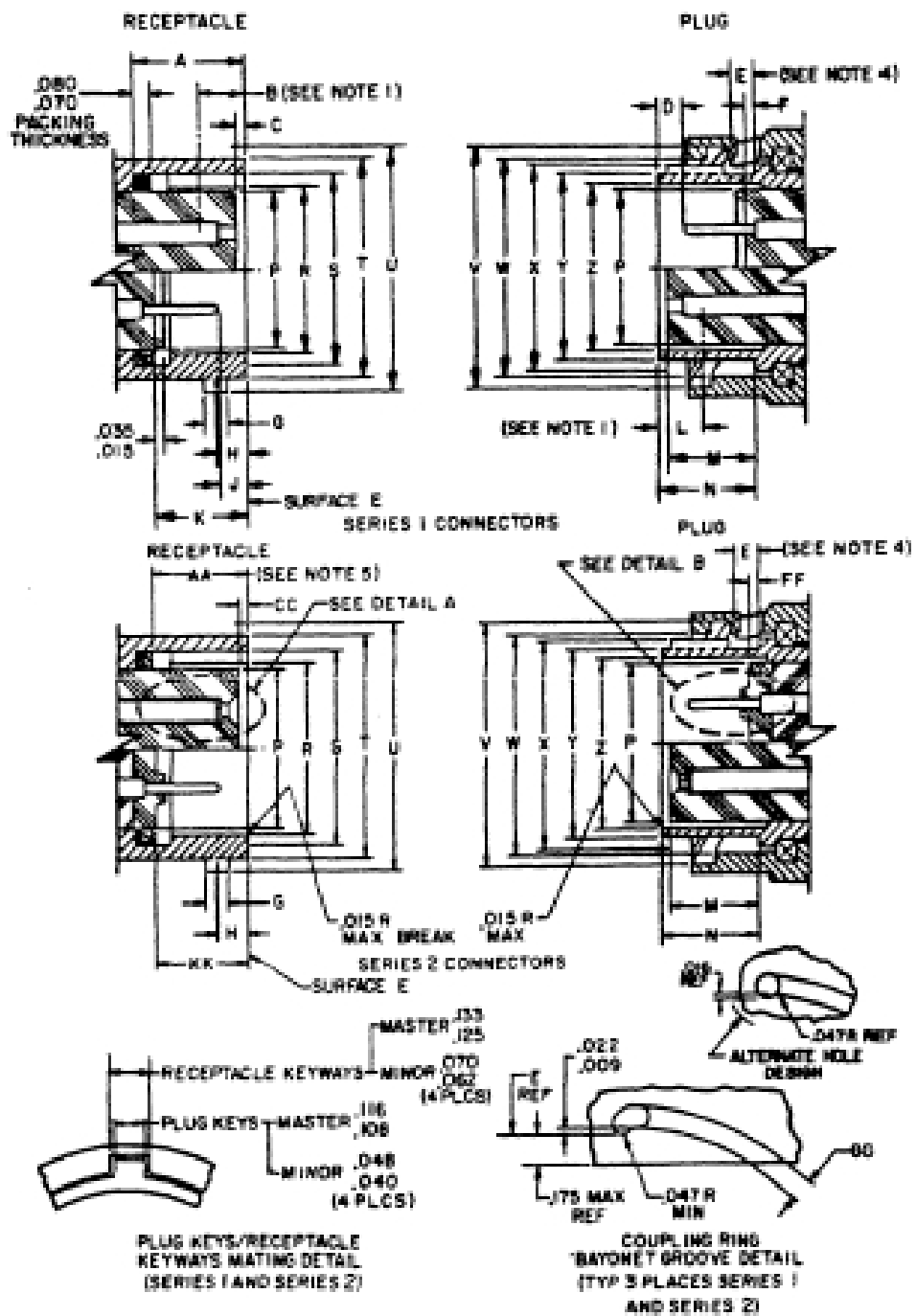
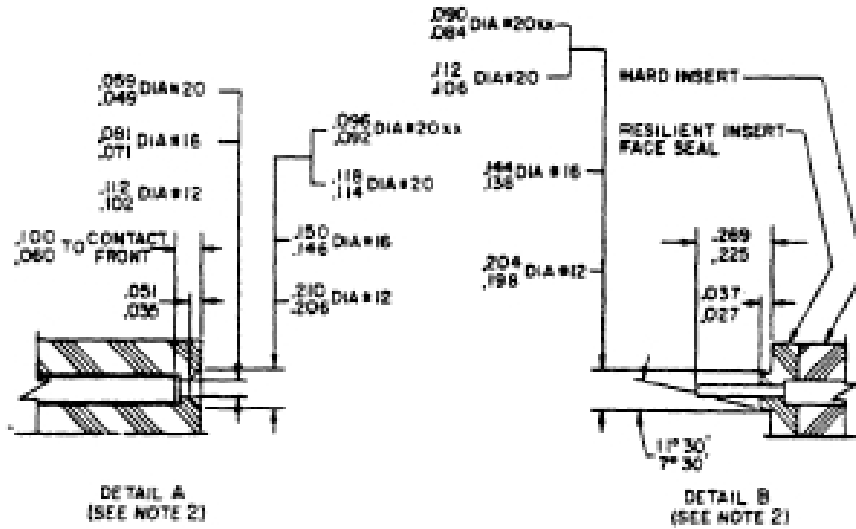


FIGURE 3. Connector intermateability control dimensions (series 1 and series 2).



Shell size	Applies to series					
	1 only	1 only	1 only	1 only	1 and 2	1 only
	A package location	B (see note 1)	C Socket insert location	D Pin cont location	E (see note 4)	F Pin insert location
8	.392 .372	.153 .075	.025 .005	.085 .055	.133 .093	.050 .030
10						
12						
14						
16						
18						
20	.454 .434	.215 .137	.087 .067			.112 .092
22						
24					.172 .132	

FIGURE 3. Connector intermateability control dimensions (series 1 and series 2) – Continued.

Shell size	Applies to series					
	1 and 2	1 and 2	1 only	1 only	1 only	1 and 2
	G bay dia	H bay location	J Pin cont location	K Pin insert location	L (see note 1)	M Socket insert location
8	.084 .076	.100TP	.095 .065	.332 .312	.143 .065	.357 .337
10						
12						
14						
16						
18						
20			.157 .127	.394 .374		.419 .399
22						
24	.131 .123	.109TP				

Shell size	Applies to series				
	1 and 2	1 and 2	1 and 2	1 and 2	1 and 2
	N shoulder location	P Max insert dia	R shell id	S Dia over keyways	T shell od
8	.363 .343	.285	.367 .361	.417 .406	.474 .468
10		.402	.495 .489	.545 .534	.591 .585
12		.516	.612 .606	.694 .683	.751 .745
14		.641	.737 .731	.819 .808	.876 .870
16		.766	.862 .856	.944 .933	1.001 .995
18		.855	.967 .961	1.044 1.033	1.126 1.120
20	.425 .405	.980	1.092 1.086	1.169 1.158	1.251 1.245
22		1.105	1.217 1.211	1.294 1.283	1.376 1.370
24		1.229	1.342 1.336	1.419 1.408	1.501 1.495

FIGURE 3. Connector intermateability control dimensions (series 1 and series 2) – Continued.

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Shell size	Applies to series					
	1 and 2	1 and 2	1 and 2	1 and 2	1 and 2	1 and 2
	U dia over bays	V cpig R groove dia	W cpig R id	X dia over keys	Y shell od	Z min shell id
8	.563	.581	.486	.403	.358	.292
	.547	.570	.480	.392	.352	
10	.680	.702	.607	.531	.486	.409
	.664	.691	.601	.520	.480	
12	.859	.876	.766	.680	.598	.523
	.843	.865	.760	.669	.592	
14	.984	1.000	.890	.805	.723	.648
	.968	.989	.884	.794	.717	
16	1.108	1.125	1.015	.930	.848	.772
	1.092	1.114	1.009	.919	.842	
18	1.233	1.250	1.141	1.030	.948	.862
	1.217	1.239	1.135	1.019	.942	
20	1.358	1.375	1.265	1.155	1.073	.987
	1.342	1.364	1.259	1.144	1.067	
22	1.483	1.500	1.390	1.280	1.198	1.111
	1.467	1.489	1.384	1.269	1.192	
24	1.610	1.629	1.515	1.405	1.323	1.237
	1.594	1.618	1.509	1.394	1.317	

Shell size	Applies to series				
	2 only	2 only	2 only	1 and 2	2 only
	AA (see note 5)	CC socket insert	FF pin insert	GG bay groove	KK pin insert
8	.335 .315	.022 .005	.045 .025	.106 .089	.334 .317
10					
12					
14					
16					
18	.397 .377	.084 .067	.107 .087	.153 .136	.396 .379
20					
22					
24					

FIGURE 3. Connector intermateability control dimensions (series 1 and series 2) – Continued.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.0035	.09	.085	2.16	.150	3.81	.379	9.63
.005	.13	.087	2.21	.153	3.89	.392	9.96
.009	.23	.089	2.26	.157	3.99	.394	10.01
.010	.25	.090	2.29	.172	4.37	.396	10.06
.015	.38	.092	2.34	.175	4.44	.397	10.08
.022	.56	.093	2.36	.198	5.03	.399	10.13
.025	.63	.095	2.41	.204	5.18	.402	10.21
.027	.69	.096	2.44	.206	5.23	.403	10.24
.030	.76	.099	2.51	.210	5.33	.406	10.31
.035	.89	.100	2.54	.215	5.46	.409	10.39
.037	.94	.102	2.59	.225	5.72	.417	10.59
.040	1.02	.106	2.69	.269	6.83	.419	10.64
.045	1.14	.107	2.72	.285	7.24	.434	11.02
.047	1.19	.108	2.74	.292	7.42	.454	11.53
.048	1.22	.110	2.79	.312	7.92	.458	11.89
.049	1.24	.112	2.84	.315	8.00	.474	12.04
.050	1.27	.114	2.90	.317	8.05	.480	12.19
.051	1.29	.116	2.95	.332	8.43	.486	12.34
.055	1.40	.118	3.00	.334	8.48	.489	12.42
.059	1.50	.119	3.02	.335	8.51	.495	12.57
.060	1.52	.123	3.12	.337	8.56	.516	13.11
.062	1.57	.125	3.18	.343	8.71	.520	13.21
.065	1.65	.127	3.23	.352	8.94	.523	13.28
.067	1.70	.131	3.33	.357	9.07	.531	13.49
.070	1.78	.132	3.35	.358	9.09	.534	13.56
.071	1.80	.133	3.38	.361	9.17	.535	13.59
.075	1.91	.136	3.45	.363	9.22	.547	13.89
.076	1.93	.137	3.48	.367	9.32	.563	14.30
.080	2.03	.138	3.51	.372	9.45	.570	14.48
.081	2.06	.143	3.63	.374	9.50	.581	14.76
.084	2.13	.146	3.71	.377	9.58	.585	14.86

FIGURE 3. Connector intermateability control dimensions (series 1 and series 2) – Continued.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.591	15.01	.848	21.54	1.044	26.52	1.269	32.23
.592	15.04	.855	21.72	1.067	27.10	1.280	32.51
.598	15.19	.856	21.74	1.073	27.25	1.283	32.59
.601	15.26	.859	21.82	1.086	27.58	1.294	32.87
.606	15.39	.862	21.89	1.092	27.74	1.317	33.45
.607	15.42	.865	21.97	1.105	28.07	1.323	33.60
.612	15.54	.870	22.10	1.108	28.14	1.336	33.93
.641	16.28	.876	22.25	1.111	28.22	1.342	34.09
.648	16.46	.884	22.45	1.114	28.30	1.358	34.49
.664	16.87	.890	22.64	1.120	28.45	1.364	34.65
.669	16.99	.919	23.34	1.125	28.58	1.370	34.80
.680	17.27	.930	23.62	1.126	28.60	1.375	34.92
.684	17.37	.933	23.70	1.135	28.83	1.376	34.95
.691	17.55	.942	23.93	1.141	28.98	1.384	35.15
.693	17.60	.944	23.98	1.144	29.06	1.390	35.31
.702	17.83	.948	24.08	1.155	29.34	1.394	35.41
.717	18.21	.951	24.41	1.158	29.41	1.405	35.67
.723	18.36	.967	24.56	1.169	29.69	1.408	35.76
.731	18.57	.968	24.59	1.192	30.28	1.419	36.04
.737	18.72	.980	24.89	1.198	30.43	1.467	37.26
.745	18.92	.984	24.99	1.211	30.76	1.483	37.67
.751	19.07	.987	25.07	1.217	30.91	1.489	37.82
.760	19.30	.989	25.10	1.229	31.22	1.495	37.97
.766	19.46	.995	25.27	1.233	31.32	1.500	38.10
.772	19.61	1.000	25.40	1.237	31.42	1.501	38.12
.794	20.17	1.001	25.42	1.239	31.47	1.509	38.33
.805	20.45	1.009	25.63	1.245	31.62	1.515	38.48
.808	20.52	1.015	25.78	1.250	31.75	1.594	40.49
.819	20.80	1.019	25.88	1.251	31.77	1.610	40.89
.842	21.39	1.030	26.16	1.259	31.98	1.618	41.10
.843	21.41	1.033	26.24	1.265	32.13	1.619	41.12

NOTES:

1. 'B' and 'L' distance between end of shell and the point at which a gage pin having the same basic diameter as the mating contact and a square face first engages socket contact spring (Applies to series 1 only).
2. Details 'A' and 'B' apply to both plugs and receptacles (Applies to series 2 only).
3. 'XX' where space does not permit use of normal diameters, reduced diameters are used. Refer to applicable MS connector sheets for affected arrangements (Applies to series 2 only).
4. 'E' distance from plug shell shoulder to locking point of coupling ring (Applies to series 1 and series 2).
5. 'AA' initial contact with static seal (Applies to series 2 only).

FIGURE 3. Connector intermateability control dimensions (series 1 and series 2) – Continued.

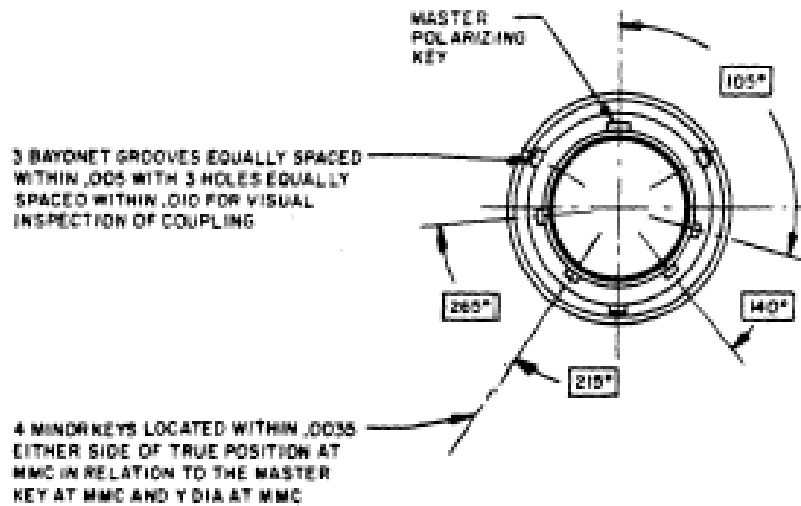
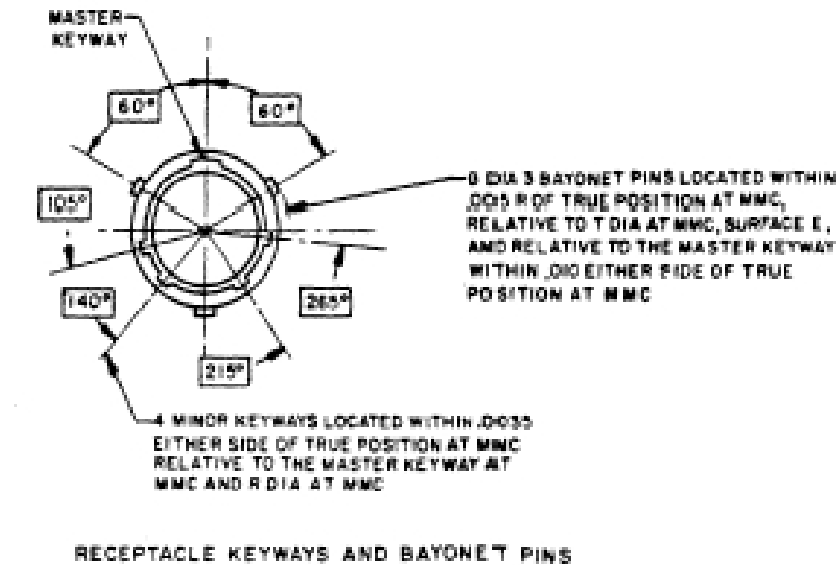
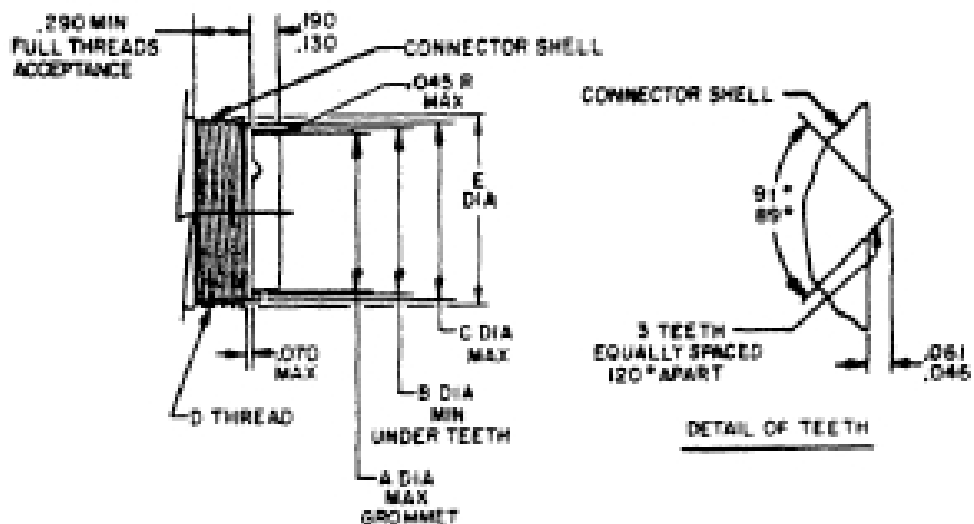


FIGURE 3. Connector intermateability control dimensions (series 1 and series 2) – Continued.



Shell Size	A	B	C	D thread (class 2)	E Dia.	
					Receptacle (Max)	Plug (Min)
8	.305	.370	.437	.500-20 UNF	.499	.470
10	.405	.497	.572	.625-24 UNEF	.625	.600
12	.531	.613	.687	.750-20 UNEF	.750	.724
14	.665	.738	.812	.875-20 UNEF	.875	.849
16	.790	.863	.937	1.000-20 UNEF	1.000	.974
18	.869	.919	.992	1.0625-18 UNEF	1.062	1.030
20	.994	1.044	1.117	1.1875-18 UNEF	1.187	1.154
22	1.119	1.169	1.242	1.3125-18 UNEF	1.312	1.279
24	1.244	1.294	1.367	1.4375-18 UNEF	1.437	1.404

FIGURE 4. Rear accessory interchangeability control dimensions (series 2 only).

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Inches	mm	Inches	mm
.045	1.14	.849	21.56
.046	1.17	.863	21.92
.061	1.55	.869	22.07
.070	1.78	.875	22.23
.130	3.30	.919	23.34
.190	4.83	.937	23.80
.290	7.37	.974	24.74
.305	7.75	.992	25.20
.370	9.40	.994	25.25
.405	10.29	1.000	25.40
.437	11.10	1.030	26.16
.470	11.94	1.044	26.52
.497	12.62	1.062	26.97
.499	12.67	1.117	28.37
.531	13.49	1.119	28.42
.572	14.53	1.154	29.31
.600	15.24	1.169	29.69
.613	15.57	1.187	30.15
.625	15.88	1.242	31.55
.665	16.89	1.244	31.60
.687	17.45	1.279	32.49
.724	18.39	1.294	32.87
.738	18.75	1.312	33.32
.750	19.05	1.367	34.72
.790	20.07	1.404	35.66
.812	20.62	1.437	36.50

FIGURE 4. Rear accessory interchangeability control dimensions (series 2 only) - Continued.

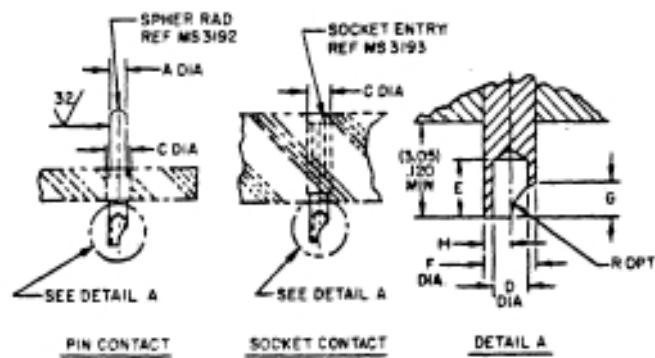


FIGURE 5A. Contacts, solder type, class E, P and J.

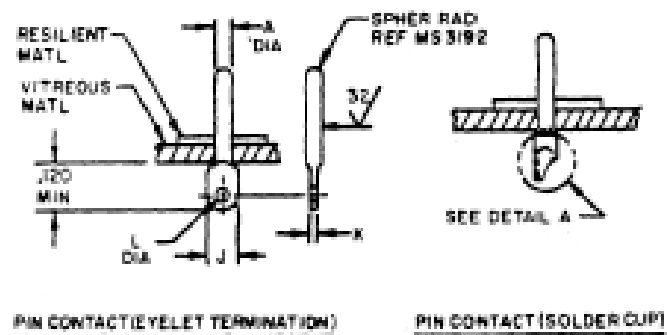
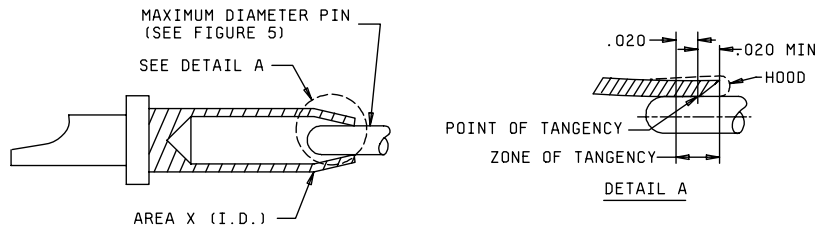
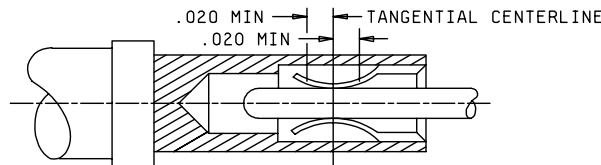


FIGURE 5B. Contact, solder type, class H.

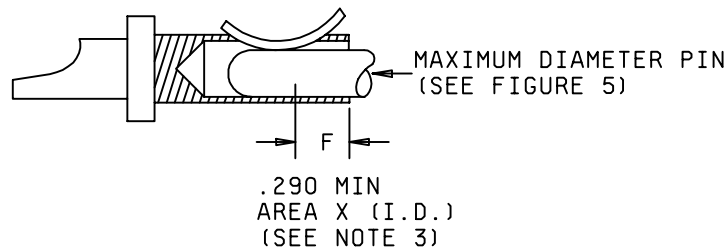
FIGURE 5. Solder type contacts (series 1).



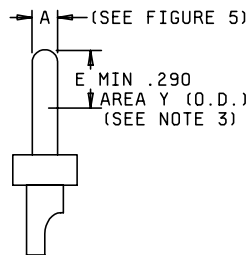
5C.1 Socket contact with integral pressure member (hood removed).



5C.2 Socket contact with separate pressure member as primary current carrying interface.



5C.3 Socket contact with separate pressure members.



5C.4 Pin contacts.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. F equals length of maximum electrical contact (wiping) area plus .020 (0.51 mm) minimum. Maximum wipe shall be equal to maximum E of mating pin engagement minus the spherical radius.

FIGURE 5C. Areas of applications of localized finish.

FIGURE 5. Solder type contacts (series 1) – Continued.

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Size	A ± .001	C Max	D Min	E + .063 - .016	F		G ± .031	H ± .010	J Max	K Min	L Min
					Min	Max					
20	.040	.100	.042	.125	.061	.088	.094	.037	.085	.012	.042
16	.0625	.130	.069	.188	.096	.116	.125	.054	.115	.020	.065
12	.094	.190	.112		.139	.150		.070	.190		.096

Inches	mm	Inches	mm
.001	.02	.085	2.16
.010	.25	.088	2.23
.012	.30	.094	2.39
.016	.41	.096	2.44
.020	.51	.100	2.54
.031	.79	.112	2.84
.037	.94	.115	2.92
.040	1.02	.116	2.95
.042	1.07	.120	3.05
.054	1.37	.125	3.18
.061	1.55	.130	3.30
.0625	1.59	.139	3.53
.063	1.60	.150	3.81
.065	1.65	.188	4.77
.069	1.72	.190	4.82
.070	1.78		

Surface finish shall be in accordance with ANSI B46.1-1962, dimension "A" is Measured over plating. Dimensions in inches.

FIGURE 5. Solder type contacts (series 1) – Continued.

3.4.1.3 Through-bulkhead contacts (series 1). The engaging ends of contacts in through-bulkhead connectors shall conform dimensionally to corresponding details of figure 5A. Contacts shall be nonremovable.

3.4.1.4 Crimp contacts (series 2).

3.4.1.4.1 Crimp power contacts. Crimp power contacts shall conform to MIL-C-39029/4, /5, /9, /10, or /15. Neither the pin nor socket shall be damaged by twisting or forcing during mating and unmating of the connectors, or by insertion of contacts into or removal of contacts from the connector with the tools specified for insertion or removal.

3.4.1.4.2 Crimp shielded contacts. Size 12 shielded contacts shall be qualified to MIL-C-39029/7 or MIL-C-39029/8. Contacts shall be inserted and removed with the same tools used for the size 12 power contacts. Unless otherwise specified, shielded contacts shall not be supplied with the connector (see 6.3).

3.4.1.4.3 Insertion and removal tools (series 2). Tools required for assembly or disassembly of pin and socket contacts into their connector inserts, shall be in accordance with **MIL-I-81969/30 or MIL-I-81969/14 MS3448 or MS27534**. Unless otherwise specified, connectors shall be supplied with insertion and removal tools (see 6.3).

3.4.2 Insert design and construction.

3.4.2.1 Insert design and construction (series 1). Inserts shall be of voidless construction and shall be secured to prevent rotation within the shell. The inserts shall be nonremovable from the shell and shall be installed in the position specified in MIL-STD-1669.

3.4.2.1.1 Inserts for crimp contact connectors (series 1). In crimp contact connectors, the insert and wire sealing grommet or insulating spacer shall be one integral part. The design shall permit the removal and reinsertion of individual contacts without any damage detrimental to connector performance to any part of the insert, including contact retention mechanisms or the sealing members, using the applicable **MIL-I-81969/17 and MIL-I-81969/19 MS24256** tools.

3.4.2.1.2 Contact arrangement (series 1). Contacts shall be arranged in accordance with MIL-STD-1669. All solder cup openings shall be oriented so that they face the terminus of the indexing radius indicated in MIL-STD-1669 and are at right angles to a center line coinciding with the indexing radius.

3.4.2.1.3 Contact spacing. Minimum nominal center-to-center spacing and minimum dielectric thickness, contact to shell, or contact to contact shall be in accordance with the values shown in table III.

TABLE III. Minimum nominal contact spacing and minimum dielectric thickness.

Connector classes	Contact size	Service rating I			Service rating II		
		Center-to-center	Dielectric		Center-to-center	Dielectric	
			Rigid	Resilient		Rigid	Resilient
F, J, L, P, N	20	.130	0.006	0.008	0.162	0.008	0.012
	16	.168	.006	.008	.190	.008	.012
	12	.205	.006	.008	.230	.008	.012
H	20	.130	.006	.030	.162	.008	.030
	16	.168	.006	.030	.190	.008	.030
	12	.205	.006	.030	.230	.008	.030

3.4.2.1.4 Contact alinement (series 1). Inserts for socket contacts shall provide an overall side-play of the socket contacts of 0.0025 to 0.0075 inch from the required position to facilitate alinement with mating pin contacts.

3.4.2.1.5 Class H (series 1). Contacts shall be fused into the vitreous inserts of class H connectors. A resilient face shall be permanently bonded to the insert to ensure an interfacial seal in mating.

3.4.2.2 Insert design and construction (series 2). The inserts shall be rigid plastic and so designed and constructed with proper-sections and radii that they will not chip, crack or break during normal assembly or service. Hollow-type inserts shall not be used. The inserts shall be nonremovable, mechanically retained, and bonded to the shell with the design and construction such that all air paths

between cavities are eliminated. The insert engaging faces shall be designed and constructed such that all air paths between cavities at the connector interfaces shall be eliminated when the connectors are mated. The inserts shall be so designed that positive locking of the contacts in the inserts is provided. Socket insert face shall be of a rigid plastic material. The design shall permit the removal and reinsertion of individual contacts without any damage detrimental to connector performance to any part of the insert, including contact retention mechanisms and the sealing members, using the applicable **MIL-I-81969/14** or **MIL-I-81969/30 MS27534 or MS3448** tool.

3.4.2.2.1 Inserts (series 2, class H). Class H receptacle inserts shall be so designed and constructed with proper sections and radii that they will not readily chip, crack or break during normal assembly or service. The inserts shall be nonremovable from the shell and shall meet the requirements of this specification.

3.4.2.2.2 Inserts (series 2, class N). The inserts shall be bonded assembly forming a single unit; the front shall be of a vitreous material with a resilient face and the back shall be rigid plastic. The inserts shall be so designed and constructed with proper sections and radii that they will not chip, crack or break during normal assembly or service. Hollow-type inserts shall not be used. The insert assembly shall be nonremovable such that all air paths between cavities are eliminated. The insert engaging connector interfaces shall be eliminated when the connectors are mated. The inserts shall be so designed that positive locking of the crimp terminals in the rigid plastic is provided.

3.4.2.2.3 Contact insertion and extraction (series 2, except class H). The connector design shall permit individual insertion and extraction of contacts without removing the insert or sealing numbers. Insertion of the contacts into, and extraction of the contacts from the insert shall be accomplished from the wire side of the connector and with the aid of tools listed in 3.4.1.4.3. Insertion/extraction shall be possible with a full complement of maximum OD wire (see table IV).

TABLE IV. Maximum wire diameter.

Contact size	Maximum OD
20	.083
16	.103
12	.158

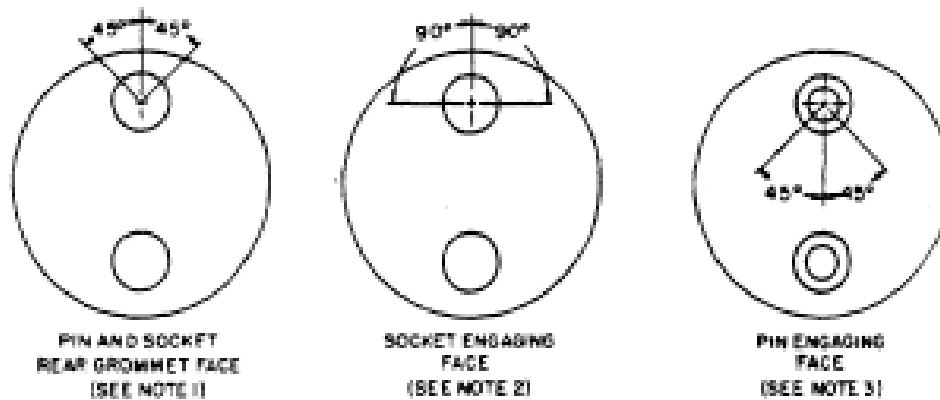
3.4.2.2.4 Contact arrangement identification (series 2). The contact positions shall be permanently designated in contrasting color on the front face of the insert and on the rear face of the wire sealing grommet as noted on the insert arrangement of MIL-STD-1669, and figure 6. ~~The interfacial markings of the inserts shall not be raised or recessed on any sealing surfaces.~~

3.4.2.2.5 Insert position (series 2). The inserts shall be positioned with respect to the shell within the tolerance specified in figure 3.

3.4.2.2.6 Alternate insert position (series 2). Alternate insert position shall be as shown in MIL-STD-1669.

3.4.2.2.7 Contact alinement (series 2). The alinement of pin contacts assembled into either plug or receptacle shall be as specified in MIL-STD-1669 when measured at the engaging end of the contacts.

3.4.2.2.8 Contact float (series 2). Socket contacts assembled in either plug or receptacle shall allow for contact float of 0.0025 to 0.0075 inch from true alinement position.



NOTES:

1. Contact identification letters on rear grommet face of socket and pin insert shall be within 45° either side of vertical centerline above the contact cavity.
2. Letters shall be placed on socket insert engaging face as shown. The letters shall be above the horizontal centerline of the chamfered lead-ins. Where space precludes the application of letters an ever expanding orbital line is permissible.
3. Letters on the engaging face of the pin insert shall be on the raised seal barrier or at the base of the raised seal barrier above or beside the pin contact cavity. Letter shall not extend into the lower sector of the raised seal barrier which extends 45° either side of the vertical centerline. Where space precludes their application an expanding orbital line is permissible.
4. On outer row of contacts individual cavity identification may be deleted from those cavities where space precludes its application.
5. Underscoring of lower case letters is optional.

FIGURE 6. Insert cavity identification locations (series 2).

3.4.3 Shell design (except classes H and N). The connector shells shall be seamless and shall retain their inserts in a positive manner. The shells for the connectors shall be designed to accept and retain a cable support or other accessory as shown in the applicable MS standard. Connectors shall be designed in such a manner as to incorporate a static peripheral seal located within the receptacles.

3.4.3.1 Jam nut receptacle shells. Jam nut mounting connectors shall be provided with a mounting nut and an "O" ring seal.

3.4.3.2 Connector shell (series 2). The connector shell shall have a blue color band in accordance with ANSI C83.1 (RS-359) indicating a rear release connector. The location of the color band shall be as specified (see 3.1).

3.4.3.3 Backshell accessories (series 2). Backshells shall conform to requirements specified (see 3.1). The backshells shall have provision for safety wiring. In addition, they shall have wire sealing grommet compression capability. Backshells shall be free of any sharp edges or other configurations that could cause damage to wire extending through them. In addition, the RFI backshell shall provide metal-to-metal bottoming of the follower to the rear face of the connector shell. Interchangeability dimensions shall be as specified on MS3155.

3.4.3.4 RFI finger spring (series 2) (RFI plugs). Grounding springs shall have a minimum of six fingers per inch. Spring fingers shall be designed to make electrical contact with the mating shell without interfering with proper engagement. The grounding springs shall be permanently fixed to the shell periphery.

3.4.4 Engagement of connectors. Counterpart connectors of any arrangement and accessories shall be capable of being fully engaged and disengaged without the use of tools. Engagement of connectors shall be defined as full insertion of pins into sockets and proper sealing of the mating insert faces. Full engagement shall be indicated by an audible sound at the completion of the coupling cycle, and a positive detent shall be included in the coupling mechanism to lock connectors in the engaged position.

3.4.4.1 Coupling. Connectors shall be coupled to counterpart connectors by means of bayonet coupling rings. Coupling shall be accomplished by clockwise rotation of the coupling ring; uncoupling by counterclockwise rotation. The bayonet coupling rings shall be knurled to provide a gripping surface. Coupling pins on the receptacle shall have end surfaces of contrasting color to the coupling ring. The ends of the pins shall be visible through suitable holes in the coupling ring when the connectors are fully engaged and the coupling ring is in the locked position.

3.4.4.1.1 Coupling assurance (series 2). Three axial stripes shall be placed on the plug shell which will align with three corresponding stripes on the coupling ring when completely coupled.

3.4.4.2 Shell polarization. Polarization of connectors shall be accomplished by matched integral key(s) and keyway(s) of counterpart connectors. The polarization of counterpart connectors shall take place before coupling rings are engaged, and before any pin contacts can touch the opposing insert face or socket of the counterpart connector.

3.4.4.3 Lubrication. Bayonet coupling slots shall be coated with a suitable lubricant. Features which are intended to provide potting compound anchorage shall be free of lubricant. Accessory threads of series 1 shall be coated with a suitable lubricant.

3.4.4.4 Engagement seal. Connectors shall contain sealing means so that engaged connectors comply with the requirements specified herein. The design of the seal shall be such that in mated connectors all paths between adjacent contacts and between contacts and shells are eliminated. There shall be interfacial mating of the engaged connector insert to provide dielectric under compression of 0.005 inch minimum.

3.4.4.5 Protective covers and storage receptacles (series 1). When mated to counterpart connectors, the protective covers and storage receptacles shall maintain the connector free of moisture, prevent air leakage, and comply with the applicable requirements of this specification.

3.4.5 Wire sealing.

3.4.5.1 Classes E and F connectors (series 1). Class E and F connectors, except MS3112, MS3119, MS3122 and MS3127 shall be provided with a wire-sealing resilient grommet and gland nut capable of sealing on wires of the sizes specified in table II.

3.4.5.1.1 Solder contact connectors (series 1). Class E solder contact connectors shall be provided with a removable resilient grommet and retaining feature. The grommet shall be designed to fit firmly against the rear face of the insert and around each contact and wire termination so that any air path from each contact termination to all other terminations and the shell is interrupted by dielectric material under compression of 0.005 inch, minimum.

3.4.5.1.2 Crimp contact connectors (series 1). Crimp contact connectors shall be provided with an integral grommet and insert.

3.4.5.2 Class P connectors (series 1). Class P connectors shall be provided with a plastic potting form suitable to accept and bond to MIL-S-8516 potting material. Inserts of class P connectors shall be so designed that potting material will adhere to the shell and insert without treatment by the user.

3.4.5.3 Class H connectors (series 1). Class H connectors shall not be supplied with wire sealing grommet; however, the shells and inserts shall be so designed that MIL-S-8516 potting material will adhere to the insert without treatment by the user.

3.4.5.4 Class J connectors (series 1). Class J connectors shall be provided with a resilient gland and gland nut capable of sealing on appropriate single-jacketed multi-conductor cables.

3.4.5.5 Grommet sealing plugs (series 1). The grommets of classes E and F connectors shall be designed to accept sealing lugs in accordance with MS3187 in lieu of wire where unwired contacts are employed. Fifteen percent of the number of contacts but not less than 1, shall be included in the unit package. Unless otherwise specified, connectors shall be supplied with grommet sealing plugs (see 6.3).

3.4.5.6 Wire sealing members (rear grommet) (series 2, classes L, R, and A). The wire sealing member shall provide suitable sealing for overall wire diameters listed in table II, and shall not be removable from the shell. The seal shall accept a full complement of wire approaching the minimum OD or a full complement of wire approaching the maximum OD.

3.4.5.7 Grommet sealing plugs (series 2, classes L, R, and A). Grommet sealing plugs for unused contact cavities shall be in accordance with MS3187 or MS27488. The same sealing plugs shall be for use in both connector plugs and receptacles. Fifteen percent of the number of contacts, but not less than 1, shall be enclosed in the unit package. Unless otherwise specified, connectors shall be supplied with grommet sealing plugs (see 6.3).

3.4.6 Receptacle mounting. Receptacle mounting shall be one of the following as specified (see 3.1):

- (a) Flange mounting
- (b) Jam nut mounting
- (c) Solder mounting

3.5 Intermateability and interchangeability.

3.5.1 Intermateability. Connectors conforming to this specification shall be intermateable. When different series of connectors or different types of contacts (crimp or solder) are used in a mated pair of connectors, the minimum performance requirements (temperature, sealing, etc) shall be met.

3.5.2 Interchangeability. All connectors and accessories having the same MS standard part number shall be completely interchangeable with each other with respect to installation (physical) and performance (function) as specified herein.

3.6 Performance. Connectors shall perform as follows when subjected to the conditions and tests specified. Unless otherwise specified, class R and A connectors must meet the performance requirements of the class L.

3.6.1 Maintenance aging (series 1, crimp contact connectors). After being tested as specified in 4.6.2, all crimp contact connectors shall be capable of conforming to this specification. Contact retention (see 4.6.32), shall be performed on contacts subjected to the maintenance aging test.

3.6.2 Mating and unmating forces (series 1). When tested as specified in 4.6.3, mating and unmating of protective covers and of counterpart connectors with the maximum number of contacts installed, shall meet the torque requirements of table V.

TABLE V. Connector mating and unmating forces (series 1) Torque (inch-pounds).

Shell size	Maximum engagement and disengagement	Minimum disengagement
8	8	1
10	12	1
12	16	2
14	20	4
16	24	4
18	28	4
20	32	6
22	36	7
24	44	7

3.6.3 Mating and unmating forces (series 2). When tested as specified in 4.6.4, completely assembled connectors, except RFI plugs, shall meet the torque requirements of table VI. **Mating and unmating forces for RFI shielded plugs shall not exceed the values specified in table VI by more than 20 percent.**

TABLE VI. Connector mating and unmating forces (series 2) Torque (inch-pounds).

Shell size	Maximum engagement and disengagement	Minimum disengagement
8	8	1
10	10	1
12	14	2
14	17	4
16	23	4
18	26	4
20	31	6
22	38	7
24	38	7

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3.6.4 Contact resistance (series 1). When tested as specified in 4.6.5, solder contacts in the mated condition or mated contacts consisting of crimp contacts mated to solder contacts shall meet the contact resistance requirements of table VII. Crimp contacts in the mated condition shall meet the contact resistance requirements of **MIL-C-39029**.

TABLE VII. Contact resistance limits (series 1).

Connector class	Wire barrel size	Wire size	Maximum voltage drop			
			Initial mV		After corrosion mV	
E, F, J, And P	20	24	45		55	
		22	45		55	
		20	55		65	
	16	20	45		55	
		18	45		55	
		16	50		60	
	12	14	45		55	
		12	50		60	
H	20	20	Maximum voltage drop			
			Initial		After corrosion	
			Avg mV	Indiv mV	Avg mV	Indiv mV
			70	105	90	165
			65	95	80	165
			65	95	80	165
			65	95	80	165
			65	95	80	165

3.6.5 Contact resistance (series 2).

3.6.5.1 Contact resistance (series 2, class L). When tested as specified in 4.6.6, resistance of mated pairs of pin and socket contacts shall be such that the potential drop measured with the specified test current will not be greater than the potential drop listed in table VIII.

TABLE VIII. Contact resistance limits (series 2).

Contact	Wire size	Maximum voltage drop mV
20	24	45
	22	45
	20	55
16	20	45
	18	45
	16	50
12	14	45
	12	50

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3.6.5.2 Contact resistance (series 2, classes H and N). When tested as specified in 4.6.6, the contact resistance of receptacle shall not exceed that specified in table VIII by more than 700 percent.

3.6.6 Insulation resistance (series 1). Insulation resistance versus temperature shall be as shown on figure 1A.

3.6.6.1 Insulation resistance at ambient temperature (series 1). When connectors are tested as specified in 4.6.7.1 at 25°C (77°F), the insulation resistance shall be greater than 5,000 megohms.

3.6.6.2 Insulation resistance at elevated temperature – short time (series 1). When connectors are tested as specified in 4.6.7.2 at 125°C, the insulation resistance shall be greater than 3 megohms.

3.6.6.3 Insulation resistance at elevated temperature – long time (series 1). When connectors are tested as specified in 4.6.7.3 at 105°C, the insulation resistance shall be greater than 12 megohms.

3.6.7 Insulation resistance (series 2). Insulation resistance versus temperature shall be as shown on figure 2A.

3.6.7.1 Insulation resistance (series 2). When connectors are tested as specified in 4.6.8.1 at 25°C, the insulation resistance shall be greater than 5,000 megohms.

3.6.7.2 Insulation resistance (high temperature) (series 2). When connectors are tested as specified in 4.6.8.2 at 200°C (**classes H, N, and W, 175°C**), the insulation resistance shall be greater than 500 megohms.

3.6.8 Dielectric withstanding voltage (series 1). When tested as specified in 4.6.9.1 and 4.6.9.2, connectors shall show no evidence of breakdown or flashover when subjected to the test voltages and altitudes of table XXV.

3.6.8.1 Working voltages. Maximum working voltages are as shown in table IX.

TABLE IX. Working voltage, ac, rms (series 1 and 2).

Condition	Service rating I	Service rating II	Service rating shielded
Sea level	600	1,000	500 volts, dc
70,000 ft	300	450	--

3.6.9 Dielectric withstanding voltage (series 2).

3.6.9.1 Dielectric withstanding voltage (sea level). When tested as specified in 4.6.10.1, maximum leakage current shall be 2 milliamperes and there shall be no evidence of electric breakdown or flashover. The service rating is on the applicable military standard.

3.6.9.2 Dielectric withstanding voltage (altitude). When tested as specified in 4.6.10.2, maximum leakage current shall be 2 milliamperes and there shall be no evidence of electric breakdown or flashover.

3.6.10 Contact insertion and removal forces (crimp contact connectors) (series 1). The contact insertion forces and the forces required to remove unlocked contacts shall not exceed the values specified in table X when subjected to the maintenance aging test (see 4.6.2).

TABLE X. Contact insertion and removal forces (pounds, maximum) (series 1).

Contact size	Insertion and removal forces
20	20
16	20
12	30

3.6.11 Contact insertion and removal forces (series 2) (except class H). When tested as specified in 4.6.11, the insertion force for any individual contact shall not exceed 15 pounds. The removal force shall not exceed 10 pounds.

3.6.12 Thermal shock (series 1). When tested as specified in 4.6.12, there shall be no evidence of damage detrimental to the operation of connectors.

3.6.13 Thermal shock (series 2). After testing as specified in 4.6.13, connectors shall meet the subsequent test requirements listed in the applicable test sequence table.

3.6.14 Water pressure (series 1) (applicable to solder-type contact connectors, class E receptacles and class J plugs). When tested as specified in 4.6.14, receptacle inserts and panel seals shall show no leakage. In addition, there shall be no evidence of leakage at the connector interface of mated connectors, neither shall there be evidence of water penetration into the J adapters of the mated and unmated plugs; and the insulation resistance of mated connectors at the end of 48 hours, while still immersed, shall be 100 megohms minimum. After removal of unmated connectors from the immersion tank, the insulation resistance shall be 100 megohms minimum.

3.6.15 Air leakage (series 1).

3.6.15.1 Solder contact receptacles (except class H), through-bulkhead receptacles, class J plugs, stowage, receptacles, and protective covers. When tested as specified in 4.6.15, the air leakage rate shall be no greater than 1 atmospheric cubic inch per hour ($4.55 \times 10^{-3} \text{ cm}^3/\text{s}$), including the flange O-ring seal of all jam nut receptacles.

3.6.15.2 Class H connectors. When tested as specified in 4.6.15.2, the air leakage rate shall not exceed 0.1 micron cubic foot per hour ($1 \times 10^{-6} \text{ cm}^3/\text{s}$). The specified leakage rate shall apply only through the connector and not through the flange and mounting surface area, unless solder mounted.

3.6.16 Air leakage (series 2, classes H and N). When receptacles are tested as specified in 4.6.16, the leakage rate shall not exceed 0.1 micron cubic foot per hour ($1 \times 10^{-6} \text{ cm}^3/\text{s}$) when subjected to a differential pressure of 14.7 ± 0.3 pounds force per square inch (lb_f/in^2).

3.6.17 Durability (series 1). When tested as specified in 4.6.17, counterpart connectors shall show no mechanical or electrical defects detrimental to the operation of the connector, after 500 cycles of coupling and uncoupling.

3.6.18 Durability (series 2, except RFI plugs). When tested as specified in 4.6.18, connectors shall meet the subsequent test requirements after 500 cycles of mating and unmating.

3.6.18.1 Durability (series 2) (RFI plugs). When tested as specified in 4.6.18, connectors shall meet the subsequent test requirements after 250 cycles of mating and unmating.

3.6.19 Salt spray (corrosion) (series 1). When tested as specified in 4.6.19, unmated connectors, stowage receptacles, protective covers and accessories shall show no exposure of basic metal, which will affect performance when evaluated as specified in SAE-AIR 4789 . The connector shall meet all subsequent test requirements.

3.6.20 Salt spray (corrosion) (series 2). When tested as specified in 4.6.20, there shall be no exposure of the basic metal which will affect performance **when evaluated as specified in SAE-AIR 4789**. The connector shall meet all subsequent test requirements.

3.6.21 Vibration (series 1). When tested as specified in 4.6.21, mated connectors shall not be damaged and there shall be no loosening of parts. Counterpart connectors shall be retained in full engagement, and there shall be no interruption of electrical continuity longer than 10 microseconds.

3.6.22 **Random vibration (series 2)**. When tested as specified in 4.6.22, mated connectors shall not be damaged and there shall be no loosening of parts. The coupling ring shall not loosen and there shall be no interruption of electrical continuity longer than 1 microsecond.

3.6.23 Shock (specified pulse) (series 1). When tested as specified in 4.6.23, mated connectors shall not be damaged and there shall be no interruption of electrical continuity longer than 10 microseconds.

3.6.24 Shock (specified pulse) (series 2). When tested as specified in 4.6.24, mated connectors shall not be damaged and there shall be no interruption of electrical continuity longer than 1 microsecond.

3.6.25 Humidity (series 1). When tested as specified in 4.6.25, mated connectors shall maintain an insulation resistance of 100 megohms or greater at 25°C.

3.6.26 Humidity (series 2). When tested as specified in 4.6.26, insulation resistance shall be at least 100 megohms. The connector shall meet the subsequent tests listed in the applicable test sequence table.

3.6.27 Fluid immersion (series 1). When tested as specified in 4.6.27, connectors shall mate within the forces specified in table V.

3.6.28 Fluid immersion (series 2).

3.6.28.1 Classes H, L and N. After being tested as specified in 4.6.28.1, connectors shall mate properly and shall meet the requirements of all subsequent tests.

3.6.28.2 Retention system fluid immersion (series 2). When tested as specified in 4.6.28.2, connectors shall meet the requirements of subsequent tests as specified herein. (Effects of fluids on resilient sealing members shall not be a consideration of this test.)

3.6.29 Insert retention (series 1) (except class H). When tested as specified in 4.6.29, inserts shall not be dislocated from their original positions. The effective pressure differential shall be 75 lb_f/in².

3.6.29.1 Insert retention (series 1) (class H). When tested as specified in 4.6.29, class H inserts shall not be dislocated from the original positions. The effective pressure differential shall be 200 lb_f/in².

3.6.30 Insert retention (series 2, class L). When connectors are tested as specified in 4.6.30, inserts shall withstand an applied minimum pressure of 150 lb_f/in².

3.6.30.1 Insert retention (series 2, classes H and N). When tested as specified in 4.6.30.1, receptacles shall support a minimum differential pressure in either direction of 100 lb_f/in² for shell sizes 8 through 24 static loading for a minimum of 5 minutes. The receptacle shall meet the subsequent test requirements of the applicable test sequence table.

3.6.31 Gage location and retention (crimp type contacts). The axial location of series 1 pin contacts and series 2 pin and socket contacts shall be measured as specified in 4.6.31 using test gages conforming to MS3460, MS3461, or MS3462, as applicable. Gage location measurements shall fall within the range specified in figure 3. Test gages conforming to MS3460, MS3461, or MS3462, as applicable, shall be retained in the pin and socket cavities of series 1 and series 2 crimp contact connectors, and in the rear termination cavities of class N connectors, with the axial loads specified in table XI applied. The axial displacement of the test gages while under load shall not exceed 0.015 inch.

3.6.32 Contact retention. When tested as specified in 4.6.32, contacts shall be retained in their inserts at the axial loads specified in table XI. The axial displacement of crimp contacts with respect to the shell shall not exceed 0.012 inch while under load with the accessory tightened or 0.015 while under load with the accessory removed. The axial displacement of solder contacts with respect to the shell shall not exceed 0.012 inch within one minute after the load has been removed.

TABLE XI. Axial loads for contact retention.

Contact size	Axial load (pounds-minimum)	
	Series 1	Series 2
20	15	20
16	25	25
12	25	30
8	40	40

3.6.33 Contact engaging and separating forces (series 1). When tested as specified in 4.6.33, socket contacts shall comply with the engagement and separation forces of table XII.

TABLE XII. Contact engaging and separating forces (series 1).

Contact mating end size	Minimum separation force (ounces) Minimum diameter MS3197 pin	Maximum average engagement force (ounces) Maximum diameter MS3197 pin	Maximum engagement force (ounces) Maximum diameter MS3197 pin
20	0.75	12	18
16	2	24	30
12	3	24	30

Mating end size	Initial			After conditioning		
	Minimum separation force (ounces)	Maximum average engagement force (ounces)	Maximum Engagement force (ounces)	Minimum separation force (ounces)	Maximum average engagement force (ounces)	Maximum engagement force (ounces)
	Minimum diameter SAE-AS31971 pin	Maximum diameter SAE-AS 31971 pin	Maximum diameter SAE-AS 31971 pin	Minimum diameter SAE-AS 31971 pin	Maximum diameter SAE-AS 31971 pin	Maximum diameter SAE-AS 31971 pin
12	3	24	30	2.5	29	36
16	2	24	30	1.5	29	36
20	0.7	12	18	0.6	14	22

3.6.34 Probe damage (series 1). When tested as specified in 4.6.34, socket contacts shall meet the requirements of 3.6.33.

3.6.35 Cover chain, tensile strength (series 1). When tested as specified in 4.6.35, protective covers with chains shall withstand a 25-pound tensile test without damage.

3.6.36 Altitude immersion (series 2). When connectors are tested as specified in 4.6.36, the insulation resistance shall not be less than 1,000 megohms and the connector shall show no evidence of breakdown, flashover or corona when subjected to a minimum of 1,500 volts root mean square (rms). Maximum leakage current during the dielectric withstanding voltage test shall be 2 milliamperes.

3.6.37 Temperature life (series 2, class H). Following the test as specified in 4.6.37, the contact resistance shall meet the requirements of 3.6.5.2.

3.6.37.1 Temperature life with contact loading (series 2, classes N and W). When tested as specified in 4.6.37.1, the contacts shall maintain their specified locations as shown on figure 11 and there shall be no electrical discontinuity in excess of 1 microsecond.

3.6.38 Ozone exposure (series 2). When connectors are tested as specified in 4.6.38, there shall be no evidence of cracking of materials or other damage that will adversely affect the subsequent performance of the connectors in the applicable test sequence.

~~3.6.39 Shell conductivity (series 2, except class A). When tested as specified in 4.6.39, mated plugs and receptacles shall be electrically conductive from the plug accessory thread to the receptacle mounting flange or to the accessory thread on the cable connecting plug. The overall dc resistance shall not exceed .2 ohm. The overall dc resistance for RFI plug connectors (with grounding fingers) shall not exceed .005 ohm.~~

3.6.39 Shell to shell conductivity (series 2, except class A). When tested as specified in 4.6.39, the probes shall not puncture or otherwise damage the connector finish and the maximum measured potential drop across assemblies shall be as follows:

(a) **With spring fingers.** Five millivolts for classes L, R and W.

(b) **Without spring fingers:** 200 millivolts.

3.6.40 Insert grommet bonding (series 2, class L). Specimens of the insert grommet bonded assembly and the insert interfacial seal bonded assembly shall be subjected to the test specified in 4.6.40. There shall be evidence of cohesive failure of the insert face seal, grommet or insert material rather than complete adhesive failure of bond. The test shall be conducted using only the complete insert assemblies in their final form prior to assembly into the connector shell.

3.6.41 External bending moment (series 2, class L). When tested as specified in 4.6.41 using the applicable bending moment shown in table XIII, connectors shall show no evidence of damage detrimental to their normal operation nor shall there be any interruption of electrical continuity.

TABLE XIII. External bending moment (series 2).

Shell size	Bending moment (inch-pounds) 2 inch lever
8	55
10	61
12	115
14	134
16	154
18	199
20	245
22	270
24	328

3.6.42 Pin contact stability (series 2, class L). When tested as specified in 4.6.42, the total displacement of the contact tip end shall not exceed the amount shown in table XIV.

TABLE XIV. Contact stability (series 2).

Contact size	Total displacement (inch)
20	.038
16	.052
12	.062

3.6.43 RFI shielding (series 2, RFI plugs only, except class A). When tested as specified in 4.6.43, the RFI shielding capabilities of the shells shall not be less than that specified in table XV at the specified frequencies.

TABLE XV. RFI shielding effectiveness.

Frequency MHz	Leakage attenuation dB
100	65
150	60
200	60
300	55
400	55
600	50
800	45
1,000	45

3.6.44 RFI finger spring force (series 2, class L, except class A). When tested as specified in 4.6.44, the plug and receptacle axial mating force shall be in accordance with table XVI.

TABLE XVI. RFI finger spring force (series 2, class L).

Shell size	Axial force	
	Maximum lbs	Minimum lbs
8 and 10	15	2
12 and 14	20	2
16 thru 24	30	2

3.6.45 Insertion removal tool abuse (series 2, classes L and N). When tested as specified in 4.6.45, there shall be no damage to the contacts, the connector insert, or the contact retaining mechanism. The connectors shall meet the requirements of subsequent testing.

3.6.46 Contact walk-out (series 2, classes L and N). When tested as specified in 4.6.46, contacts shall not become dislodged from their normal position.

3.6.47 Accessory thread strength (series 2, class L). When tested as specified in 4.6.47, the accessory threads and portion of the connector that accepts connector accessories shall be capable of withstanding torques per table XXVIII.

3.6.48 Impact (drop) (qualification only) (series 2 only). When connectors are tested as specified in 4.6.50, there shall be no breaking or cracking of inserts, bending of pins, nor any other damage which prevents the connectors from being mated or renders them unfit to continue further testing. Any chipping of the inserts which affects its polarization or retention in the shell shall be considered a failure.

3.6.49 Solder contact plating thickness (except class H) (series 1). When measured as specified in 4.6.51, the plating thickness, except for corners, shall be in accordance with 3.3.5. All other plated surfaces shall be plated to a thickness to assure specified performance of the contact.

3.6.50 Humidity - temperature cycling (series 1, solder contact with localized finish only) (except class H). When tested as specified in 4.6.52, there shall be no evidence of defects detrimental to the electrical performance.

3.7 Marking.

3.7.1 Connector marking (series 1). Each connector shall be legibly and permanently marked on the shell or coupling ring in accordance with MIL-STD-1285. The MS standard part number shall be as shown in 1.2.1.

3.7.2 Insert marking. Inserts shall be marked as illustrated in MIL-STD-1669. Raised or depressed characters shall not be used on mating faces.

3.7.2.1 Contact designation. Contact locations shall be designated by identifiable characters of contrasting color on the front and rear faces of the insert or insert assembly. Positioning and arrangement of the characters shall be such that the appropriate contact cavity be readily identifiable. On the rear face of solder contact inserts, those individual contact designations may be omitted where space

limitations render identifiability marginal. Eighty percent of the characters on any face of the connectors shall remain identifiable after completion of the tests specified in the qualification tables.

3.7.3 Grommet marking. Wire openings on the rear face of grommets shall be marked with legible characters corresponding to the insert contact designators. On grommets of solder contact connectors it is permissible to identify, where space limitations dictate, only those wire openings which are located on the vertical centerline.

3.7.4 Connector marking (series 2). The connector shall be clearly and permanently marked in the location specified (see 3.1). Marking shall remain legible following completion of all inspections. Marking shall be nonfading. The characters shall be a minimum of .037 inch in height. The minimum character height does not apply to shell sizes 8, 10, and 12. Each connector shall be marked on the shell or coupling ring with manufacturer's name or trademark, the appropriate MS part number, if applicable (see 3.1), and the date of the manufacture (year and week). In addition, all connectors shall be marked around the periphery of the shell with a blue color band to identify the connectors as having the rear release contact system. The location of the blue band shall be as specified (see 3.1).

3.8 Workmanship. Connectors and accessories shall meet all design dimensions and intermateability requirements of this specification. Loose contacts, poor molding fabrication, loose materials, defective bonding, damaged or improperly assembled contact, peeling, or chipping of plating or finish, galling of mating parts, nicks and burrs of metal parts and post molding warpage will be considered adequate basis for rejection of items of quality inferior for the purpose intended. Emphasis shall be on the quality of the molded dielectric retention system parts.

4. VERIFICATION

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with **NCSL Z540.1** MIL-C-45662.

4.1.2 Assembly plants. Assembly plants must be listed on or approved for listing on the applicable Qualified Products List. The qualified connector manufacturer shall certify that the assembly plant is approved for the distribution of the manufacturer's parts. The assembly plant shall use only piece parts supplied by the qualified connector manufacturer. No testing other than visual examination is required of certified piece parts obtained from the qualified connector manufacturer, except when there is cause for rejection. Assemblies produced at the assembly plant shall be subjected to inspection to assure that the assembly process conforms with that established at the qualified manufacturing plant. Quality control requirements, including Government inspection surveillance, shall be the same as required for the qualified connector manufacturer.

4.1.3 Fungus resistance certification. Certification of method 508.4 of MIL-STD-810 is required (see 3.3.1).

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- (a) Qualification inspection (see 4.3).
- (b) Quality conformance inspection (see 4.4).

4.2.1 Inspection conditions. Unless otherwise specified, tests and examinations required by this specification shall be performed under any combination of conditions within the following ranges. Any specified condition shall not affect the other two ambient ranges.

Temperature: 15° to 35°C (59° to 95°F).

Relative humidity: 30 to 80 percent.

Barometric pressure: 650 to 800 mm of mercury

4.3 Qualification inspection. Qualification inspection shall be performed at a laboratory acceptable to the Government (see 6.5) on sample units produced with equipment and procedures normally used in production. After receipt of the letter of authorization from the activity responsible for qualification, the applicant shall submit to the qualifying activity three copies of his test reports (certified by the Government inspector indicating the extent to which the tests were witnessed), together with samples required by the qualifying activity.

4.3.1 Qualification of additional connectors. For connectors of the same series which have identical contacts and differ only in shell size and/or configuration from those which have been previously qualified (or are currently being qualified), the supplier's test report need only provide test data necessary to validate the differing feature(s). In addition, connectors which differ in shell size shall be subjected to the following tests and the results shall be forwarded to the qualifying activity:

<u>Test</u>	<u>Requirement paragraph</u>	<u>Test paragraph</u>
Examination of product	3.1, 3.3, 3.5, 3.7 and 3.8	4.6.1
Operating forces	3.6.3	4.6.4
Final examination of product	3.7.4	4.6.49
External bending moment (series 2, class L only)	3.6.41	4.6.41

4.3.2 Qualification samples. Samples of each class for which qualification is desired shall be tested in the sequence specified in table XVIII or XIX, as applicable. Each connector subjected to qualification testing shall be provided with a counterpart connector for those tests requiring mating assemblies. The counterpart connectors provided for this purpose shall be new, previously qualified connectors or new connectors submitted for qualification testing. Manufacturers not producing mating connectors shall submit data substantiating that tests were performed with approved counterpart connectors. Specific details on preparation of samples shall be as follows:

4.3.2.1 Series 1. A sufficient number of connectors shall be supplied to provide a minimum of 110 contact cavities of the size of contacts for which qualification of the crimp contact retention feature is desired.

4.3.2.1.1 Wire-to-contact assembly. Where wired contacts are required, terminations shall be accomplished as follows.

4.3.2.1.1.1 Solder contacts. Guidance on Solder can be found in MIL-HDBK-454, requirement 5.

4.3.2.1.1.2 Crimp contacts. A class I crimping tool conforming to M22520/I-01 or M22520/2-01 in accordance with MIL-C-22520 shall be used as applicable.

4.3.2.1.2 Connector assemblies (classes E, F and P). Three complete connector assemblies, class E wall-mount receptacles and class F straight plugs, with insert arrangements in the densest configuration of each voltage rating for which qualification is desired, in each shell size, shall be provided. Separate samples are required for crimp-contact connectors and solder-contact connectors. Crimp contacts shall be supplied but shall not be installed in connectors submitted for qualification testing.

- (a) One sample shall have pin contacts in the plug and socket contacts in the receptacle. Both halves shall be wired with approximately 3 feet of wire approaching the minimum OD specified in table II. These samples shall be subjected to the tests of table XVIII, group 1.
- (b) The other samples shall have socket contacts in the plug and pin contacts in the receptacle. Both halves shall be wired with approximately 3 feet of wire approaching the maximum OD specified in table II. These samples shall be divided into two groups and shall be subjected to all the tests of table XVIII, groups 2 and 3. One group of connectors is to be assigned to each test sequence.
- (c) Qualification of these samples shall admit qualification of other types and the balance of insert patterns in classes E, F and P by similarity. If qualification of class E or F is not sought, samples of class P shall be substituted for class E or F in the foregoing, except that nominal gage wire may be used.

4.3.2.1.3 Connector assemblies (class H). Three class H receptacles, with insert arrangements in the densest configuration of each voltage rating for which qualification is desired, in each shell size and contact style shall be provided, together with counterpart class E straight plugs.

- (a) All halves shall be wired with approximately 3 feet of wire of nominal gage.
- (b) The samples shall be divided into three equal groups and shall be subjected to all the tests of the table XVIII, groups 4, 5, and 6, one group of connectors to be assigned to each test sequence. Qualification of these samples will admit qualification of other types and the balance of insert patterns in class H by similarity.

4.3.2.1.4 Connector assemblies (class J). One mated pair of class J connector assemblies, in each shell size, shall be subjected to the tests of table XVIII, group 10.

- (a) The connectors need not be wired but shall be assembled using a solid polychloroprene cylinder of suitable length and OD in accordance with table XVII. The Shore A durometer of the test cylinder shall be from 75 to 85.
- (b) Qualification of these samples will admit qualification of all class J assemblies if class E are being qualified at the same time or have previously been qualified to this specification. If not, class J assemblies shall be subjected to all of the tests of table XVIII, groups 1 and 2.

TABLE XVII. Test cylinder OD sizes.

Shell size	Diameter \pm 0.016 inch
8	0.214
10	.250
12	.384
14	.462
16	.596
18	.646
20	.681
22	.716
24	.817

~~4.3.2.1.5 Socket contacts. Fifty of each socket contact configuration, except crimp type, shall be subjected to the tests of table XVIII, group 7. Sockets which are not completely assembled prior to installation in the insert (e.g., class H, socket style), may be provided and tested in connectors.~~

4.3.2.1.5 Solder, contacts (series 1). A sufficient number of series 1 solder contact connectors and contacts shall be provided as follows:

- (a) Fifty of each socket contact configuration shall be subjected to the tests of table XVIII, group 7. Sockets which are not completely assembled prior to installation in the insert (e.g. class H, socket style), may be provided and tested in connectors.**
- (b) Two pin contacts and two socket contacts, uninstalled but representative of each contact configuration supplied assembled in the insert, shall be provided for inspection of contact finish in accordance with 3.3.5 and 4.6.51 (table XVIII, group 12).**
- (c) Eight pin contacts and eight socket contacts (localized finish only) (see 3.3.5.1.2) of each configuration, supplied assembled in the insert, assembled in the insert, shall be provided. Samples shall be wired as required and subjected to the tests of table XVIII, group 11.**

4.3.2.1.6 Protective covers. Two protective covers of each shell size with mating class E connectors, shall be subjected to the tests of table XVIII, group 8.

4.3.2.1.7 Stowage receptacles. Two stowage receptacles of each size, with mating class E connectors, shall be subjected to the tests of table XVIII, group 8.

4.3.2.1.8 Crimp connectors. Connectors supplied in accordance with 4.3.2.1 shall be subjected to the tests specified in table XVIII, group 9.

4.3.2.2 Series 2.

4.3.2.2.1 Connector assemblies (classes L and W). Seven complete connector assemblies shall be provided for test groups 1 through 7 of table XIX. Connectors shall be wired with approximately three

feet of wire and provided with suitable backshells. A class I crimping tool conforming to M22520/1-01 or M22520/2-01 shall be used for termination of the wire to the crimp contacts. **One RFI plug of each size together with a suitable counterpart receptacle (one with inserts and bayonet pins and one without) shall be provided for test groups 6 and 8 of table XIX.** Five additional connectors shall be provided for the fluid immersion test of 4.6.2.8.1. The full complement of contacts shall be installed but need not be wired. Individual sample assembly shall be as follows:

<u>Test Group</u>	<u>Wire diameter (approaching)</u>	<u>Plug Contacts</u>	<u>Receptacle Contacts</u>	<u>Backshells (Plugs and receptacles)</u>
1	Minimum	Socket	Pin	90°
2	Maximum	Socket	Pin	90°
3	Minimum	Pin	Socket	Straight with strain relief
4	Maximum	Socket	Pin	90°
5	Minimum	Pin	Socket	Straight
6	Maximum	Pin	Socket	Straight
7	Maximum	Pin	Socket	Straight with strain relief
8	As required	Socket	Pin	None

4.3.2.2.1.1 Intermateability samples (classes L and W). One complete series 2 connector assembly shall be provided along with a complete counterpart series 1 connector assembly for test group 9 of table XIX. The series 2 plug shall be mated with the series 1 receptacle and the series 1 plug with the series 2 receptacle. The samples shall have socket contacts in the plugs and pin contacts in the receptacles, and shall be fully wired with applicable nominal diameter wire (approximate).

4.3.2.2.2 Hermetic receptacles (classes H and N). Seven hermetic receptacles together with suitable counterpart plugs shall be provided for test groups 1 through 7 of table XX. An additional hermetic receptacle together with a suitable counterpart series 1 plug shall be provided for test group 9 of table XIX. Five additional connectors shall be provided for the fluid immersion test of 4.6.28.1. All samples shall be fully wired with applicable nominal diameter wire (approximate). Termination of wire to class H receptacles shall be accomplished with solder conforming to **J-STD-400, J-STD-500 and J-STD-600 QQ-S-571**. Termination of wire to crimp contacts of class N receptacles shall be accomplished with a class 1 crimping tool conforming to M22520/1-01 or M22520/2-01.

4.3.2.2.3 Samples for retention system tests (classes L and N). Seven complete connector assemblies shall be provided for test groups 1 through 7 of table XXI. (Wire sealing grommets may be removed at the option of the test facility.) Class N samples shall consist of receptacles only. Contacts shall be wired with nominal diameter wire unless otherwise specified in the test paragraph.

4.3.2.2.4 Qualification of insert grommet bonding (class L). **Two bonded insert grommet assemblies and two bonded insert interface seal assemblies which have not been assembled into the connector shell shall be tested. The assemblies shall be of the size and contact arrangement for which qualification is to be conducted. These assemblies shall meet the requirements of 3.6.40."**

4.3.3 Qualification rejection. There shall be no failures during any examination or tests of the connectors or accessories submitted for qualification tests. After notification of any failure, the activity responsible for qualification testing shall receive details of corrective action from the manufacturer before initiating any further tests deemed necessary to assure compliance with connector requirements.

TABLE XVIII. Qualification inspection (series 1).

Examination or test	Requirement paragraph	Method paragraph	Test group									
			1	2	3	4	5	6	11	12		
Examination of product	3.1, 3.3, 3.5, 3.7 and 3.8	4.6.1	X	X	X	X	X	X				
Maintenance aging	3.6.1	4.6.2	X	-	-	-	-	-				
Contact insertion and removal forces	3.6.10	4.6.11	X	-	-	-	-	-				
Contact retention	3.6.32	4.6.32	X	-	-	-	-	-				
Mating and unmating forces	3.6.2	4.6.3	X	X	X	X	X	X				
Insulation resistance at ambient temperature	3.6.6.1	4.6.7.1	X	X	X	X	X	X				
Dielectric withstanding voltage (sea level)	3.6.8	4.6.9.1	X	X	X	X	X	X				
Dielectric withstanding voltage (altitude)	3.6.8	4.6.9.2	-	X	X	X	X	X				
Contact resistance	3.6.4	4.6.5	-	X	X	-	X	X				
Thermal shock	3.6.12	4.6.12	X	-	-	X	-	-				
Air leakage	3.6.15.1	4.6.15.1	X	-	-	-	-	-				
Air leakage (hermetic)	3.6.15.2	4.6.15.2	-	-	-	X	-	-				
Insulation resistance at elevated Temperature												
Short time	3.6.6.2	4.6.7.2	-	X	-	-	-	-				
Long time	3.6.6.3	4.6.7.3	-	-	X	-	-	-				
Durability	3.6.17	4.6.17	X	-	-	X	-	-				
Vibration	3.6.21	4.6.21	X	-	-	X	-	-				
Shock (specified pulse)	3.6.23	4.6.23	X	-	-	X	-	-				
Humidity	3.6.25	4.6.25	X	-	-	X	-	-				
Salt spray (corrosion)	3.6.19	4.6.19	X	-	-	X	-	-				
Contact resistance	3.6.4	4.6.5	X	-	-	X	-	-				
Mating and unmating forces	3.6.2	4.6.3	X	-	-	X	-	-				
Fluid immersion, hydraulic fluid	3.6.27	4.6.27	-	-	X	-	-	X				
Fluid immersion, lubricating oil	3.6.27	4.6.27	-	X	-	-	X	-				
Mating and unmating forces	3.6.2	4.6.3	-	X	X	-	X	X				
Dielectric withstanding voltage (sea level)	3.6.8	4.6.9.1	-	X	X	-	X	X				
Contact retention (crimp contacts)	3.6.32	4.6.32.2	X	X	X	-	-	-				
Contact retention (solder contacts)	3.6.32	4.6.32.1	X	X	X	-	-	-				
Insert retention	3.6.29	4.6.29	X	X	X	-	-	-				
Insert retention (hermetic)	3.6.29.1	4.6.29	-	-	-	X	X	X				
Final examination of product	3.7.2.1	4.6.49	X	X	X	X	X	X				
<u>Group 7 – Solder contacts</u>												
Contact engaging and separating forces	3.6.33	4.6.33										
Probe damage	3.6.34	4.6.34										
Contact engaging and separating forces	3.6.33	4.6.35										

TABLE XVIII. Qualification inspection (series 1) - Continued.

Examination or test	Requirement paragraph	Method paragraph	Test group								
			1	2	3	4	5	6	11	12	
<u>Group 8 – Protective covers and stowage receptacles</u>											
Examination of product	3.1, 3.3, 3.5, 3.7 and 3.8	4.6.1									
Mating and unmating forces	3.6.2	4.6.3									
Humidity	3.6.25	4.6.25									
Salt spray (corrosion)	3.6.19	4.6.19									
Cover chains, tensile strength	3.6.35	4.6.35									
Air leakage	3.6.15.1	4.6.15.13									
<u>Group 9 – Crimp contact retention feature</u>											
Examination of product	3.1, 3.3, 3.5, 3.7 and 3.8	4.6.1									
Gage location and retention	3.6.31	4.6.31									
Maintenance aging (contacts only)	3.6.1	4.6.2									
Gage location and retention	3.6.31	4.6.31									
<u>Group 10 – Connector assemblies – class J</u>											
Examination of product	3.1, 3.3, 3.5, 3.7 and 3.8	4.6.1									
Thermal shock	3.6.12	4.6.12									
Water pressure	3.6.14	4.6.14									
Air leakage	3.6.15.1	4.6.15.1									
<u>Group 11 – Localized finish solder contacts only</u>											
Examination of product	3.1, 3.3, 3.5, 3.7 and 3.8	4.6.1								X	
Contact resistance (25°C)	3.6.4	4.6.5								X	
Humidity – temperature cycling	3.6.49	4.6.52								X	
Contact resistance (25°C)	3.6.4	4.6.5								X	
<u>Group 12 – Contact finish</u>											
Contact finish	3.3.5										X

TABLE XIX. Qualification inspection (series 2, classes L and W).

Examination or test	Requirement paragraph	Method paragraph	Test group							
			1	2	3	4	5	6	7	8
Examination of product	3.1, 3.3, 3.5, 3.7, and 3.8	4.6.1	X	X	X	X	X	X	X	X
Magnetic permeability	3.3.3	4.6.48	X	-	-	-	-	-	-	-
Maintenance aging	3.6.1	4.6.2	X	-	-	-	-	-	-	-
Contact insertion & removal force	3.6.11	4.6.11	X	X	X	X	X	X	-	-
Contact stability	3.6.42	4.6.42	-	-	-	-	-	-	X	-
Gage location and retention	3.6.31	4.6.31	X	X	X	X	X	X	-	-
RFI finger spring force	3.6.44	4.6.44	-	-	-	-	-	-	-	X
Mating and unmating forces	3.6.3	4.6.4	X	X	X	X	X	X	-	X
Dielectric withstanding, sea level	3.6.9.1	4.6.10.1	X	X	X	X	X	X	-	-
Insulation resistance	3.6.7.1	4.6.8.1	X	X	X	X	X	X	-	-
Shell conductivity	3.6.39	4.6.39	X	X	X	X	X	X	-	X
Thermal shock	3.6.13	4.6.13	X	X	X	X	X	X	-	X
Durability (except RFI plugs) <u>1/</u> <u>2/</u>	3.6.18	4.6.18	-	-	-	-	-	X	-	-
Durability (RFI plugs) <u>1/</u>	3.6.18.1	4.6.4	-	-	-	-	-	X	-	X
Mating and unmating forced <u>3/</u>	3.6.3	4.6.4	-	-	-	-	-	-	-	X
Vibration <u>4/</u>	3.6.22	4.6.22	X	-	-	X	-	X	-	-
Physical shock	3.6.24	4.6.24	-	X	-	X	-	-	-	-
Temperature life with contact loading	3.6.37.1	4.6.37.1	-	-	X	-	-	-	-	-
Humidity	3.6.26	4.6.26	-	-	X	-	X	-	-	-
Insert retention	3.6.30	4.6.30	-	-	X	X	-	-	-	-
Salt spray (corrosion) <u>1/</u>	3.6.20	4.6.20	-	-	-	-	-	X	-	-
Salt spray (dynamic test, class W) <u>4/</u>	3.6.20	4.6.20.1	-	-	-	-	-	X	-	-
Ozone exposure	3.6.38	4.6.38	-	-	-	-	-	X	-	-
Fluid immersion (class L)	3.6.28	4.6.28	X	X	-	-	-	-	-	-
Altitude immersion	3.6.36	4.6.36	X	X	-	-	-	-	-	-
Mating and unmating forces <u>3/</u>	3.6.3	4.6.4	X	X	X	X	X	X	-	-
Contact retention (class L)	3.6.32	4.6.32	X	X	X	-	-	X	X	-
Dielectric withstanding voltage sea level (class L)	3.6.9.1	4.6.10.1	-	-	X	-	-	-	X	-

TABLE XIX. Qualification inspection (series 2, classes L and W) - Continued.

Examination of test	Requirement paragraph	Method paragraph	Test Group							
			1	2	3	4	5	6	7	8
Dielectric withstanding voltage altitude	3.6.9.2	4.6.10.2	X	X	X	X	X	X	-	-
Shell conductivity	3.6.39	4.6.39	X	X	X	X	X	X	-	X
RFI shielding (RFI plugs)	3.6.43	4.6.43	-	-	-	-	-	-	-	X
Insulation resistance	3.6.7.1	4.6.8.1	-	-	-	-	-	X	-	-
Insulation resistance – high temperature	3.6.7.2	4.6.8.2	X	X	X	X	X	X	-	-
Contact resistance	3.6.5	4.6.6	X	X	X	X	X	X	-	-
Insert grommet bonding	3.6.40	4.6.40	-	-	-	-	-	-	X	-
Final examination of product	3.7.4	4.6.49	X	X	X	X	X	X	X	X
External bending moment	3.6.41	4.6.41	-	-	-	-	-	-	X	-
Accessory thread strength	3.6.47	4.6.47	X	-	-	-	-	-	-	-
<u>Group 9 – Intermateability test (series 2 with series 1) (see 3.5.1)</u>										
Examination of product	3.1, 3.3 thru 3.5, 3.7, and 3.8	4.6.1								
Mating and unmating forces	3.6.2	4.6.3								
Durability	3.6.17	4.6.17								
Mating and unmating forces	3.6.2	4.6.3								
Vibration	3.6.21	4.6.21								
Impact <u>4/</u>	3.6.48	4.6.50								
Shock (specified pulse)	3.6.23	4.6.23								
Humidity	3.6.25	4.6.25								
Dielectric withstanding voltage altitude	3.6.8	4.6.9.2								
Final examination of product	3.1, 3.3 thru 3.5, 3.7, and 3.8	4.6.1								

1/ Except class W.**2/ Footnote 1 does not pertain to group 8.****3/ Conditioning mating and unmating cycles are not required for this test. Conduct torque measurement only.****4/ Qualification only.”**

TABLE XX. Qualification inspection (series 2, classes H and N).

Examination or test	Requirement paragraph	Method paragraph	Test group						
			1	2	3	4	5	6	7
Examination or product	3.1, 3.3 thru 3.5, 3.7 & 3.8	4.6.1	X	X	X	X	X	X	X
Contact insertion and removal forces <u>1/</u>	3.6.11	4.6.11	X	X	X	X	X	X	-
Contact retention	3.6.32	4.6.32	X	X	X	X	X	X	-
Mating and unmating forces	3.6.3	4.6.4	X	X	X	X	X	X	-
Dielectric withstanding voltage – sea level	3.6.9.1	4.6.10.1	-	X	X	X	X	X	X
Insulation resistance	3.6.7.1	4.6.8.2	X	X	X	X	X	X	-
Shell conductivity	3.6.39	4.6.39	X	X	X	X	X	X	-
Thermal shock	3.6.13	4.6.13	X	X	X	X	X	X	-
Durability	3.6.18	4.6.18	X	X	-	-	X	X	-
Vibration	3.6.22	4.6.22	X	-	-	X	-	X	-
Physical shock	3.6.24	4.6.24	-	X	-	X	-	-	-
Temperature life (class H)	3.6.37	4.6.37	-	-	X	-	-	-	-
Temperature life with contact loading (class N)	3.6.37.1	4.6.37.1	-	-	X	-	-	-	-
Humidity	3.6.26	4.6.26	-	-	X	-	X	-	-
Insert retention	3.6.30.1	4.6.30.1	-	-	X	X	-	-	-
Salt spray (corrosion)	3.6.20	4.6.20	-	-	-	-	-	X	-
Ozone exposure	3.6.38	4.6.38	-	-	-	-	-	X	-
Fluid immersion <u>2/</u>	3.6.28	4.6.28	X	X	X	X	X	X	X
Altitude immersion	3.6.36	4.6.36	X	X	-	-	-	-	-
Mating and unmating forces <u>3/</u>	3.6.3	4.6.4	X	X	X	X	X	X	-
Contact retention	3.6.32	4.6.32	X	-	X	-	-	-	-
Dielectric withstanding voltage – sea level	3.6.9.1	4.6.10.1	-	-	-	-	-	X	-
Dielectric withstanding voltage – altitude	3.6.9.2	4.6.10.2	X	X	X	X	X	X	-
Shell conductivity	3.6.39	4.6.39	X	X	X	X	-	X	-
Insulation resistance – room ambient	3.6.7.1	4.6.8.1	-	-	-	-	-	X	-
Insulation resistance –high temperature	3.6.7.2	4.6.8.2	X	X	X	X	X	X	-
Contact resistance	3.6.5.2	4.6.6	X	X	X	X	X	X	X
Final examination of product	3.7.4	4.6.49	X	X	X	X	X	X	-
Air leakage	3.6.16	4.6.16	X	X	X	X	X	-	-

1/ Class N only.2/ Counterpart plugs may be exempted or suitably protected.3/ Conditioning mating and unmating cycles are not required for this test. Conduct torque measurement only.TABLE XXI. Retention system qualification (series 2, classes L and N).

Examination or test	Requirement paragraph	Method paragraph	Test group						
			1	2	3	4	5	6	7
Examination of product	3.1, 3.3 thru 3.5, 3.7 & 3.8	4.6.1	X	X	X	X	X	X	X
Retention system fluid immersion	3.6.28.1	4.6.28.2	X	X	X	X	X	X	X
Contact insertion and removal forces	3.6.11	4.6.11	X	X	X	X	X	X	X
Insertion/removal tool abuse	3.6.45	4.6.46	-	-	-	-	-	X	-
Contact retention	3.6.32	4.6.32	X	X	X	X	X	X	X
Contact walk-out	3.6.46	4.6.47	-	-	-	-	-	-	X
Final examination of product	3.7.4	4.6.49	X	X	X	X	X	X	X

4.4 Quality conformance inspection.

~~4.4.1 Inspection of product for delivery. Inspection of product for delivery shall consist of groups A and B inspection.~~

4.4.1 Inspection lot. An inspection lot shall consist of all connectors of the same shell size, covered by the same MS standards, produced under essentially the same conditions, and offered for inspection at one time.

~~4.4.1.1 Group A inspection. Group A inspection shall consist of the examination of product in accordance with 4.6.1. In addition, class H (series 1) connectors shall be subjected to the air leakage test (see 4.6.15.2), and class H and class N (series 2) connectors shall be subjected to the air leakage test (see 4.6.16).~~

4.4.1.1 Group A inspection. Connectors shall be subjected to the individual tests shown in tables XXIIa or group A inspection, the documentation and standard test conditions of EIA-364 do not apply.

TABLE XXIIa. Group A inspection.

Test	Requirement paragraph	Test paragraph
Examination of product <u>1/</u>	3.1, 3.3 thru 3.5, 3.7 & 3.8	4.6.1
Insulation resistance (ambient temperature) <u>1/ 2/ 3/</u>	3.6.7.1	4.6.8.1
Dielectric withstanding voltage <u>1/ 3/</u>	3.6.9	4.6.10
Air leakage (class H, series 1) <u>1/ 3/</u>	3.6.15	4.6.15.2
Air leakage (classes H and N, series 2) <u>1/ 3/</u>	3.6.16	4.6.16
Mating and unmating forces (series 1) <u>3/</u>	3.6.2	4.6.3
Mating and unmating forces (series 2) <u>3/</u>	3.6.3	4.6.4

1/ One hundred percent inspection.

2/ Test between two adjacent contacts and between two peripheral contacts and the shell.

3/ The contractor may use in-process controls for this requirement.

~~4.4.1.1.1 Sampling plan. Statistical sampling and inspection shall be in accordance with MIL-STD-105 for general inspection level II. The acceptable quality level (AQL) shall be 1.0 for major defects and 4.0 for minor defects. Major and minor defects shall be as defined in MIL-STD-105.~~

4.4.1.1.1 Visual examination. Each connector shall be visually examined for completeness, workmanship, and identification requirements. Attention shall be given to those assemblies that require a gasket to determine the condition of that gasket. Gaskets missing, twisted, buckled, kinked, or damaged in any way shall be cause for rejection

4.4.1.1.2 Rejected lots. If an inspection is rejected, the supplier may rework it to correct the defects, or screen out the defective units, and resubmit for inspection. Resubmitted lots shall be inspected using tightened inspection. Such lots shall be kept separate and shall be clearly identified as reinspected lots.

4.4.1.2 Group B inspection. Group B inspection shall consist of the applicable tests specified in table XXIIb, and shall be made on sample units which have been subjected to and have passed the group A inspection. **For group B, the documentation and standard test conditions of EIA-364 do not apply.**

TABLE XXIIb. Group B inspection.

Test	Requirement paragraph	Method paragraph
Examination of product	3.1, 3.3 thru 3.5, 3.7 & 3.8	4.6.1
Dielectric withstanding voltage (series 1, except solder type)	3.6.8	4.6.9.3
Dielectric withstanding voltage (series 2, except class H)	3.6.9.1	4.6.10.3
Insulation resistance (series 1, except solder type)	3.6.6.1	4.6.7.4
Insulation resistance (series 2, except class H)	3.6.7.1	4.6.8.3
Gage location and retention	3.6.31	4.6.31

~~4.4.1.2.1 Sampling plan. The sampling plan shall be in accordance with MIL-STD-105 for special inspection level S-4. The sample size shall be based on the inspection lot size from which the sample was selected for group A inspection. The AQL shall be 2.5 percent defective.~~

4.4.1.2.1 Sampling plan. A sample size shall be randomly selected in accordance with table XXIIc. If one or more defects are found, the lot shall be rescreened and defects removed. If one or more defects are found, a new sample shall be randomly selected from table XXIIc. If one or more defects are found, the lot shall not be supplied to this specification.

TABLE XXIIc. Sampling plan for group B.

Lot size	Sample size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1200	34 units
1200 to 3200	42 units

~~4.4.1.2.2 Rejected lots. If an inspection lot is rejected, the supplier may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection. Such lots shall be separate from new lots, and shall be clearly identified as reinspected lots.~~

4.4.1.2.3 Disposition of sample units. Sample units which have passed all the group B inspection may be delivered on the contract or purchase order if the lot is accepted and sample units are still within specified tolerances.

~~4.4.2 Inspection of preparation for delivery. Sample packages and packs and the inspection of the preservation packaging, packing and marking for shipment and storage shall be in accordance with the requirements of MIL-DTL-55330.~~

4.5 **Periodic inspection.** Qualification verification inspection shall consist of group C. Except where the results of these inspections show noncompliance with the applicable requirements (see 4.5.1.1.5), delivery of products which have passed group B shall not be delayed pending the results

4.5.1 **Group C inspection.** Group C inspection shall consist of the tests specified in tables XXIII and XXIV in the order shown. **Group C inspection shall be performed every 24 months, which must be accomplished within this period after notification of qualification.** Group C inspection shall be made on sample units selected from inspection lots which have passed the groups A and B inspection.

4.5.1.1 **Sampling plan.** Every ~~48~~ **24** months, mated connector sample units which have passed **groups A and B inspections** shall be subjected to the tests specified in tables XXIII and XXIV. Samples shall be selected in sufficient quantity to provide two samples per applicable test group (tables XXIII and XXIV), as determined by the series (1 or 2) and the class of the samples to be tested.

TABLE XXIII. Group C inspection (series 1).

Test	Requirement paragraph	Method paragraph	Test group					
			1	2	3	4	5	6
Contact retention (solder contacts)	3.6.32	4.6.32.1	X	X	-	-	X	X
Durability	3.6.17	4.6.17	X	-	X	-	X	-
Humidity	3.6.25	4.6.25	X	-	X	-	-	-
Water pressure	3.6.14	4.6.14	-	-	-	-	X	-
Air leakage (solder contacts)	3.6.15.1	4.6.15.1	X	X	-	-	X	X
Salt spray (corrosion)	3.6.19	4.6.19	-	X	-	X	-	X
Mating and unmating forces	3.6.2	4.6.3	X	X	-	-	X	X

TABLE XXIV. Group C inspection (series 2).

Test	Requirement paragraph	Method paragraph	Test group					
			1	2	3	4	5	6
Gage location and retention	3.6.31	4.6.31	X	X	-	-	-	-
RFI finger spring force	3.6.44	4.6.44	-	-	-	-	X	-
Shell conductivity	3.6.39	4.6.39	-	-	-	-	X	-
Durability	3.6.18	4.6.18	X	-	X	-	X	-
Mating and unmating forces	3.6.3	4.6.4	X	-	-	X	X	X
Humidity	3.6.26	4.6.26	X	-	X	-	-	-
Salt spray (corrosion)	3.6.20	4.6.20	-	X	-	X	-	X
Mating and unmating forces	3.6.3	4.6.4	X	X	-	X	X	X

4.5.1.1.1 **Connector ~~samples assemblies~~ (series 1).** For group C testing, series 1 connectors shall be provided as follows:

- (a) Class E, F or P – Separate samples (complete connector assemblies) are required for crimp-contact connectors and solder-contact connectors. Four samples shall be provided. Two samples shall have pin contacts in the plug and socket contacts in the receptacle, and shall be wired with approximately three feet of wire approaching the minimum OD specified in table II. The other two samples shall have socket contacts in the plug and pin contacts in the receptacle, and shall be wired with approximately three feet of wire approaching the minimum

OD specified in table II. Two of the samples (one with minimum wire and one with maximum wire) shall be subject to test group 1 of table XXIII. The other two samples shall be subjected to test group 2 of table XXIII.

- (b) Class H – Four samples shall be provided together with counterpart class E straight plugs. The connectors shall be wired with approximately three feet of wire of nominal gage specified in table II. The samples shall be subjected to test groups 3 and 4 of table XXIII.
- (c) Class J – Four mated pairs of class J connectors, assembled in accordance with 4.3.2.1.4(a), shall be divided into two equal groups and shall be subjected to test groups 5 and 6 of table XXIII.

4.5.1.1.2 Connector **samples assemblies** (series 2). For group C testing, series 2 connectors shall be provided as follows:

- (a) Class L – Four complete connector assemblies shall be provided. Two of each shall have pin contacts in the plug and socket contacts in the receptacle, and shall be wired with approximately three feet of wire approaching the applicable minimum OD specified in table II. The remaining samples shall have socket contacts in the plug and pin contacts in the receptacle, and shall be wired with approximately three feet of wire approaching the applicable maximum OD specified in table II. Fifty percent of the samples with pin contacts in the plug and fifty percent of the samples with socket contacts in the plug shall be subjected to the tests of table XXIV, group 1. The balance of the samples shall be subjected to the tests of table XXIV, test group 2.
- (b) Classes H and N – Four samples of each class shall be provided, together with counterpart class L plugs. Two samples of each class shall be wired with wire of nominal gage within the applicable range of table II and subjected to the tests of table XXIV, group 3. The balance of the samples shall have the full complement of contacts installed in the plugs but need not be wired. These shall be subjected to the tests of table XXIV, test group 4.
- (c) RFI plugs – Four samples of class L shall be provided, together with counterpart receptacles. These samples shall have a full complement of contacts installed but need not be wired. The samples shall be divided into two equal groups and shall be subjected to the tests of table XXIV, test groups 5 and 6. **In addition, 2 receptacle connectors without inserts and with bayonet pins removed shall be provided for test aids for group 5 (RFI finger spring force).**

4.5.1.1.3 Failures. If one or more sample units fail to pass group C inspection, the sample shall be considered to have failed.

4.5.1.1.4 Disposition of sample units. Sample units which have been subjected to group C inspection shall not be delivered on the contract or purchase order.

4.5.1.1.5 Noncompliance. If a sample fails to pass group C inspection, the supplier shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured with essentially the same materials, processes, etc., and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action, acceptable to the Government, has been taken. After the corrective action has been taken, group C inspection shall be repeated on additional sample units (all inspection, or the inspection which the original sample failed, at the option of the Government). Groups A and B inspections may be reinstituted; however, final acceptance shall be withheld until the group C reinspection has shown that the

corrective action was successful. In the event of failure after reinspection, information concerning the failure and corrective action taken shall be furnished to the cognizant inspection activity and the qualifying activity.

4.5.2 Inspection of packaging. The sampling and inspection of the preservation, packing, and container marking shall be in accordance with the requirements of MIL-DTL-55330."

4.6 Methods of examination and tests.

4.6.1 Examination of product. The connectors, accessories, and piece parts shall be examined to ensure conformance with this specification and the applicable detail documents not covered by the performance requirements of 3.6. In-process controls of component parts, unrelated to lot sizes of finished connectors, may be utilized in lieu of examination of these components in the finished connectors to assure conformance of these component parts. Visual inspection of each molded contact retention device for molding discrepancies shall be a required inprocess control for all removable contact connectors.

Examination in a continuing manner shall be performed to assure compliance with the following requirements:

- (a) Applicable MS standard.
- (b) Materials.
- (c) Design and construction.
- (d) Interchangeability.
- (e) Finish.
- (f) Marking.
- (g) Workmanship.

4.6.2 Maintenance aging (crimp contacts only) (see 3.6.1). Connectors shall be tested in accordance with EIA 364 test procedure 24 method 2002 of MIL-STD-1344. The following details shall apply:

- (a) Contacts shall be removed and reinserted once using the appropriate MIL-I-81969/17 and MIL-I-81969/19 tools for series 1 and ~~MS3448~~ or MIL-I-81969/14 for series 2.**
- (b) Connectors shall be mated and unmated 10 times. A minimum of 20 percent but not less than three of the contacts shall be removed and reinserted nine times. Maximum forces shall be as specified in table X."**

4.6.3 Mating and unmating forces (series 1) (see 3.6.2). Mating connectors shall be tested in accordance with **EIA 364 test procedure 13 method 2013 of MIL-STD-1344**. The following details shall apply:

- (a) Rate of mating and unmating shall be one inch-pound per second.
- (b) Torque requirements shall be in accordance with table V.

4.6.4 Mating and unmating forces (series 2) (see 3.6.3). Mating connectors shall be tested in accordance with **EIA 364 test procedure 13 method 2013 of MIL-STD-1344**. The following details shall apply:

- (a) Rate of mating and unmating shall be one inch-pound per second.
- (b) There shall be 10 cycles of mating and unmating and torque shall be measured on the first and last cycle.
- (c) Torque requirements shall be in accordance with table VI.

4.6.5 Contact resistance (series 1) (see 3.6.4). Contact resistance shall be measured in accordance with **EIA 364 test procedure 06** ~~method 3004 of MIL-STD-1344~~. **For class H contacts, test current for sizes 20, 16, and 12 shall be 5.0, 10.0, 17.0 amperes, respectively.**

4.6.6 Contact resistance (series 2) (see 3.6.5). Contact resistance shall be measured in accordance with **EIA 364 test procedure 06** ~~method 3004 of MIL-STD-1344~~.

4.6.7 Insulation resistance (series 1) (see 3.6.6). Unmated connectors shall be tested in accordance with **EIA 364 test procedure 21** ~~method 3003 of MIL-STD-1344~~.

4.6.7.1 At ambient temperature (see 3.6.6.1). The following details shall apply:

- (a) Measurement shall be made between all, but not more than 6, pairs of adjacent contacts and between all, but not more than 6, contacts adjacent to the shell, and the shell. Contacts selected shall be those having the closest spacing between measuring points. Temperature shall be $25 \pm 3^{\circ}\text{C}$.

4.6.7.2 At elevated temperature (short time) (see 3.6.6.2). The details of 4.6.7.1 and the following details shall apply:

- (a) Connectors shall be exposed to a temperature of $125 \pm 3^{\circ}\text{C}$ for 250 hours. During this period, at least eight measurements shall be recorded at intervals of not less than 24 hours. After the completion of the 250 hours and while at $125 \pm 3^{\circ}\text{C}$, measurements shall be recorded on all samples.

4.6.7.3 At elevated temperature (long time) (see 3.6.6.3). The details of 4.6.7.1 and the following details shall apply:

- (a) The connectors shall be exposed to a temperature of $105 \pm 3^{\circ}\text{C}$ for 1,000 hours. At the end of this period and while the connectors are still at elevated temperature, measurements shall be recorded.

4.6.7.4 Group B inspection. The procedure of 4.6.7.1 shall apply except simulated contacts may be used and measurements need only be made between at least one pair of adjacent contacts and between one peripheral contact and the shell.

4.6.8 Insulation resistance (series 2) (see 3.6.7). Wired, unmated connectors shall be tested in accordance with **EIA 364 test procedure 21** ~~method 3003 of MIL-STD-1344~~.

4.6.8.1 At ambient temperature (see 3.6.7.1). The following details shall apply:

- (a) Measurements shall be made between each wired contact and all other wired contacts and the shell electrically connected together.

4.6.8.2 At elevated temperature (see 3.6.7.2). The details of 4.6.8.1 and the following details shall apply:

- (a) Connectors shall be exposed to a temperature of $200 \pm 3^{\circ}\text{C}$ (classes H, N, and W, $175 \pm 3^{\circ}\text{C}$) for a minimum of 30 minutes. Measurements shall then be recorded while the connectors are still at the elevated temperature.

4.6.8.3 Group B inspection. The procedure of 4.6.8.1 shall apply except simulated contacts may be used and the measurements shall be made between at least one pair of adjacent contacts and between one peripheral contact and the shell.

4.6.9 Dielectric withstanding voltage (series 1) (see 3.6.8). Unmated connectors shall be tested in accordance with **EIA 364 test procedure 20** ~~method 3001 of MIL-STD-1344~~.

4.6.9.1 At sea level (see 3.6.8). The following details shall apply:

- (a) The applicable test voltage of table XXV shall be applied between all adjacent contacts and between the shell and each peripheral contact for a minimum of five seconds. If an insert possesses two service ratings, similar connections shall be made for the different test voltages, as necessary.

4.6.9.2 At altitude (see 3.6.8). The details of 4.6.9.1 and the following details shall apply:

- (a) Connectors shall be tested after 30 minutes at the simulated altitude of of table XXV.
- (b) Only the engaging face of classes H and J shall be subjected to the high altitude. The rear faces shall be suitably protected.

4.6.9.3 Group B inspection. The procedure of 4.6.9.1 shall apply except simulated contacts may be used and the period of application of test voltage shall be one second minimum.

4.6.10 Dielectric withstanding voltage (series 2) (see 3.6.9). Unmated, wired connectors shall be tested in accordance with **EIA 364 test procedure 20** ~~method 3001 of MIL-STD-1344~~.

4.6.10.1 At sea level (see 3.6.9.1). The following details shall apply:

- (a) The applicable test voltage of table XXV shall be applied between each contact and each adjacent contact and the shell for a minimum period of one minute at the standard test conditions. Switching transient potentials in excess of the specified test voltage shall not be permitted.

4.6.10.2 At altitude (see 3.6.9.2). The details of 4.6.10.1 and the following details shall apply:

- (a) Connectors shall be placed in a suitable chamber and stabilized for a minimum period of one minute at each altitude specified in table XXV prior to the application of test voltages.
- (b) The rear faces of classes H and N connectors shall be suitably protected.

TABLE XXV. Dielectric withstanding voltage.

Altitude (ft)	Minimum test voltages, ac (rms)	
	Service rating I	Service rating II
Sea level	1,500	2,300
50,000	500	750
70,000	375	500
110,000	200	200

4.6.10.3 Group B inspection. The procedure of 4.6.10.1 shall apply except simulated contacts may be used and the period of application of test voltage shall be one second minimum.

4.6.11 Contact insertion and removal forces (removable crimp contacts) (see 3.6.10 or 3.6.11). Unmated, wired connectors shall be tested in accordance with **EIA 364 test procedure 05** ~~method 2012 of MIL-STD-1344~~. The following details shall apply:

- (a) Backshells shall be removed.
- (b) Applicable wire of MIL-W-22759 shall be used.

4.6.12 Thermal shock (series 1) (see 3.6.12). Unmated connectors shall be tested in accordance with **EIA 364 test procedure 32** ~~method 1003 of MIL-STD-1344~~. The following details shall apply:

- (a) Test condition letter A, minimum temperature -55°C and maximum temperature 125°C.**

4.6.13 Thermal shock (series 2) (see 3.6.13). Mated, wired connectors, shall be tested in accordance with **EIA 364 test procedure 32, condition I, 5 cycles,** ~~method 1003 of MIL-STD-1344, test condition A,~~ with the following exceptions:

- (a) Classes L and A minimum temperature -55°C, maximum temperature 200°C.**
- (b) Classes H, N, and W minimum temperature -55°C, maximum temperature 175°C.**

4.6.14 Water pressure (series 1) – (Applicable to solder-type contact connectors, class E receptacles and class J plugs) (see 3.6.14). The connectors shall be immersed in tap water to a depth of 6 feet for a period of 48 hours in the following manner:

- (a) Plugs with “J” adapters shall be assembled to test cylinders (see table XVII) which simulate jacketed cables.
- (b) Class E receptacles shall be mounted by their normal mounting means, with mounting flange gaskets. Jam nut mounting receptacle flanges shall be sealed only with “O” ring seals provided as accompanying hardware. One-half of the wall mounting receptacles shall be front mounted and the remaining half shall be back mounted. The terminal ends of the receptacles shall be external to the tank.
- (c) Fifty percent of the connectors tested shall be mated, and insulation resistance of the mated immersed connectors shall be measured and values recorded at the end of the 48-hour period. The other fifth percent of the connectors shall be tested unmated. Upon completion of the test, the connectors shall be removed from the tank, all external moisture removed from the connectors by shaking them at room temperature, and insulation resistance measured and recorded within one-half hour after removal from the water. All mated connectors shall be inspected for internal leakage of water at the connector interface and cable housing. All unmated plugs with “J” adapters shall be inspected for water penetration into the adapter. Class E receptacles, mated and unmated shall be inspected for leakage through or around the insert and for leakage of the panel seals.

4.6.15 Air leakage (series 1) (see 3.6.15).

4.6.15.1 Classes E, F, J, and P. Solder contact receptacles and class J plugs shall be mounted in a manner suitable for application of a 30 lb_f/in² pressure differential across the connectors. The leakage rate shall be measured in both directions after 30 minutes of exposure to the low temperature extremes of table XXVI, and while at the low temperature.

4.6.15.2 Class H. Class H receptacles shall be mounted in a manner suitable for the application of 15 lb_f/in² nominal pressure differential across the receptacles and tested in accordance with method 112, test condition C, procedure I of MIL-STD-202. The leakage rate shall be determined while pressurized air or gas, containing not less than 10 percent of helium by volume, is applied to the receptacle.

4.6.15.3 Stowage receptacles and protective covers. Stowage receptacles and protective covers shall be mated to connectors having either contacts or inserts removed so that a pressure of 10 lb/in² can be applied against the insides of the protective covers or stowage receptacles.

4.6.16 Air leakage (series 2, classes H and N) (see 3.6.16). Classes H and N receptacles shall be mounted in a suitable test apparatus for the application of specified test pressure across the connector. Wires attached to receptacles for any of the previous tests may be removed for this test. A suitable means shall be used for determining the leakage of air, or gas containing not less than 10 percent helium by volume through the connector while the specified test pressures are maintained for a minimum period of 1 minute.

4.6.17 Durability (series 1) (see 3.6.17). Counterpart connectors shall be mated and unmated 500 times at a rate of 200 ± 100 cycles per hour with the coupling rings operated in a manner to simulate actual service.

4.6.18 Durability (series 2) (see 3.6.18). The wired, assembled plugs and receptacles shall be subjected to the number of cycles of mating and unmating specified in 3.6.18 and 3.6.18.1, **at the rate of 200 ± 100 cycles per hour**. The coupling rings shall be operated in a manner to simulate actual service. The plug and receptacle shall be completely separated during each cycle.

4.6.19 Salt spray (corrosion) (series 1) (see 3.6.19). Unmated connectors and protective covers shall be tested in accordance with **EIA 364 test procedure 26** ~~method 1001 of MIL-STD-1344~~. The following details shall apply:

- (a) Test condition letter – B.
- (b) Connectors shall not be dipped in water after exposure.
- (c) Prior to all subsequent tests, corrosion tested connectors shall be engaged and disengaged for one cycle to remove free salt deposits. Contact resistance shall be measured on the first mating of the connector. ~~Corrosion products shall not be removed by brushing or wiping prior to contact resistance test.~~

4.6.20 Salt spray (corrosion) (series 2) (see 3.6.20). Unmated, wired connectors shall be tested in accordance with **EIA 364 test procedure 26** ~~method 1001 of MIL-STD-1344~~. The following details shall apply:

- (a) Test condition letter – B. **For class W - 452 hours mated followed by 48 hours unmated.**
- (b) Class N connectors shall have their rear face suitably protected.

4.6.20.1 Salt spray (dynamic test, class W) (see 3.6.20). The wired assembled plugs and receptacles shall be mated and unmated 50 cycles of durability at a rate of 200 ± 100 cycles per hour. The details specified in 4.6.18 shall apply. The sample connectors shall then be subjected to the spray test in accordance with EIA 364 test procedure 26 ~~method 1001 of MIL-STD-1344~~, the following details and exceptions shall apply:

- (a) **Four hundred and fifty two hours mated, followed by 48 hours unmated.**
- (b) **The samples shall not be mounted, but shall be suspended from the top using waxed twine or string, glass rod or glass cord.**
- (c) **Wire ends must be protected to prevent salt migration.**

After salt spray exposure, the remaining number of durability cycles specified in 3.6.18 or 3.6.18.1 shall be completed. Requirements of 3.6.18 or 3.6.18.1 and 3.6.20 shall apply.

4.6.21 Vibration (series 1) (see 3.6.21). Mated connectors shall be tested in accordance with **EIA 364 test procedure 28** ~~method 2005 of MIL-STD-1344~~. The following details shall apply:

- (a) Test condition number – III.
- (b) All contacts shall be wired in series.
- (c) Discontinuity shall be 10 microseconds maximum.

4.6.22 Random vibration (series 2) (see 3.6.22). Wired, mated connectors shall be tested in accordance with method 214 of MIL-STD-202. The following details shall apply:

- (a) The connector shall be mounted on the table by normal means.
- (b) Test condition II - letter J shall be used.
- (b) The duration of test shall be 8 hours in the longitudinal direction and 8 hours in the perpendicular direction. All contacts shall be wired in a series circuit and 100 to 150 milliamperes shall be caused to flow during vibration.

~~4.6.22 Vibration (series 2) (see 3.6.22). Mated connectors shall be test in accordance with method 2005 of MIL-STD-1344. The following details shall apply:~~

- ~~(a) Test condition number – IV.~~
- ~~(b) The temperatures and percentage of time at those temperatures are specified in table XXVI.~~
- ~~(c) All contacts shall be wired in series.~~
- ~~(d) An independent frequency scan shall be conducted on the adapter with a suitable dummy load, simulating the mass of the test sample, to determine that the mounting plate has no resonant condition in the test frequency range.~~

TABLE XXVI. Vibration during and temperature requirement (series 2).

Class	Duration	Standard temperature	Duration	Low temperature	Duration	High temperature
H,L,N	50%	15°C to 35°C (59°F to 95°F)	25%	-55°C ± 3° (-67°F)	25%	200°C ± 3° (392°F)

4.6.23 Shock (specified pulse) (series 1) (see 3.6.23). Mated, wired connectors shall be tested in accordance with **EIA 364 test procedure 27** ~~method 2004 of MIL-STD-1344~~. The following details shall apply:

- (a) Test condition letter – A.
- (b) One shock in each direction of the three major axes.
- (c) All contacts shall be wired in series with 100 ± 10 milliamperes of current flowing through the contacts during the test.
- (d) Discontinuity shall be 10 microseconds maximum.

4.6.24 Shock (specified pulse) (series 2) (see 3.6.24). Mated, wired connectors shall be tested in accordance with **EIA 364 test procedure 27** ~~method 2004 of MIL-STD-1344~~. The following details shall apply:

- (a) The pulse shall be an approximate half sine wave of $300 \text{ G} \pm 15$ percent magnitude, with a duration of 3 ± 1 milliseconds.”

- ~~(a) Test condition letter — C, except the gravity units shall be 150.~~
- (b) One shock in each direction of the three major axes.
- (c) All contacts shall be wired in series with 100 ± 10 milliamperes of current flowing through the contacts during the test.
- (d) Discontinuity shall be 1 microsecond maximum.

4.6.25 Humidity (series 1) (see 3.6.25).

4.6.25.1 Crimp contact connectors. **Mated connectors shall be tested in accordance with EIA 364 test procedure 31 method 1002 of MIL-STD-1344.** The following details shall apply:

- (a) 100 volt dc polarization voltage during steps 1 through 6 applied between alternate contacts connected together electrically and the remaining contacts and metal connector shell connected together electrically. Polarity of the metal shell shall be negative.
- (b) Mated test samples.**
- (c) **Method IV Type II**, temperature cycling test.
- (d) The insulated conductors used for measurements of insulation resistance shall have an insulation resistance greater than 100 kilohms.
- (e) After a minimum of 3 hours at step 7 of the tenth cycle, insulation resistance shall be measured while connectors are subjected to high humidity conditions. Following the tenth cycle measurements, the connectors shall be maintained at a temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 50 percent relative humidity for 24 hours. Insulation resistance shall again be measured while at this environment.

4.6.25.2 Solder contact connectors. Mated solder contact connectors shall be subjected to the following test. The test chamber shall consist of a box approximately 12 inches deep by 16 inches wide by 24 inches long, capable of being sealed, and shall be constructed of materials that will not, in the presence of water, affect deterioration of the samples. A suitable open screen tray shall be provided to support the test specimens approximately 8 inches below the top of the box. Provisions shall be made to bring out wires for measurement purposes through vaportight seals near the top of the box. Suitable controls shall be provided that will cause the chamber air temperature to vary 5°C (9°F) once each hour for 20 days, from any temperature between 22° and 28°C (72°F and 82°F), causing heavy condensation to form on the samples once each hour. The bottom of the test chamber shall be covered with approximately $\frac{1}{4}$ inch of tap water to start the test. The heat application to supply the temperature variation shall be radiant in nature and shall be applied to the underside of the test chamber.

4.6.26 Humidity (series 2) (see 3.6.26). Wired connectors shall be tested in accordance with **EIA 364 test procedure 31 method 1002 of MIL-STD-1344.** The following details shall apply:

- (a) Test procedure (b).
- (b) The test sample shall be mounted horizontally with the wires descending into the backshell.
- (c) Wires shall be brought out of the chamber through vaportight seals.
- (d) There shall be no wire splices in the chamber.
- (e) Connectors without rear seal grommets (classes H and N) shall have their rear terminals suitably protected.
- (f) After completion of step 6 of the final cycle, insulation resistance shall be measured while the connectors are subjected to the high humidity condition.

4.6.27 Fluid immersion (series 1) (see 3.6.27). Unmated connectors shall be immersed fully in the fluids specified below for the required periods. At least one connector shall be immersed in each fluid. After removal from the fluid, each connector shall remain for 1 hour in free air at room conditions. Subsequent testing shall be performed on connectors mated with mating connectors that had been immersed simultaneously.

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- (a) Hydraulic fluid conforming to MIL-H-5606 – 20 hours.
- (b) Lubricating oil conforming to MIL-L-7808 – 20 hours.

4.6.28 Fluid immersion (series 2) (see 3.6.28).

4.6.28.1 Classes H, L and N (see 3.6.28.1). At least one connector of each class shall be subjected to each of the tests of table XXVII. After testing in accordance with the individual test procedure, the connectors shall be visually (no magnification) inspected for cracks and tears and shall be mated by hand.

TABLE XXVII. Test fluids (series 2, classes H, L, and N).

Test no.	Test fluid.	Test procedure
1	MIL-L-7808	Immerse unmated connectors in fluid at $120^{\circ} \pm 3^{\circ}\text{C}$ for 5 minutes. Remove connectors and allow to drain for 1 hour at room temperature. Fluid shall be drained from all recesses. Mate connectors and expose to $125^{\circ} \pm 3^{\circ}\text{C}$ in an air circulating oven for 6 hours. Remove connectors and allow to stabilize at room temperature for 1 hour minimum. Repeat procedure for a total of seven cycles.
2	MIL-L-23699	Identical procedure to sample 1.
3	MIL-H-5606	Immerse unmated connectors in fluid at $85^{\circ} \pm 3^{\circ}\text{C}$ for 5 minutes. Remove connectors and allow to drain for a minimum of 1 hour at room temperature. Fluid shall be drained from all recesses. Mate connectors and expose to $100^{\circ} \pm 3^{\circ}\text{C}$ in an air circulating oven for 6 hours. Remove connectors and allow to stabilize at room temperature for a minimum of 1 hour. Repeat procedure for a total of seven cycles.
4	Hydraulic fluid 1/	Identical procedure to sample 3.
5	SAE-AMS1424 (or ethylene glycol)	Immerse mated connectors in fluid at $65^{\circ} \pm 3^{\circ}\text{C}$ for 5 minutes. Remove connectors and allow to drain for 1 hour minimum at room temperature. Fluid shall be drained from all recesses. Unmate and expose connectors to $100^{\circ} \pm 3^{\circ}\text{C}$ in an air circulating oven for 6 hours. Remove connectors and allow to stabilize at room temperature for a minimum of 1 hour. Repeat procedure for a total of seven cycles.
6	MIL-C-25769 MIL-PRF-87937 (diluted for cleaning)	Identical procedure to sample 5.
7	MIL-T-5624 (grade JP-5)	Immerse unmated connectors in fluid at room temperature for 5 minutes. Remove connectors and allow to drain for 1 hour at room temperature. Fluid shall be drained from all recesses. Mate connectors and expose to $55^{\circ} \pm 3^{\circ}\text{C}$ in an air circulating oven for 6 hours. Remove connectors and allow to stabilize at room temperature for a minimum of 1 hour. Repeat procedure for a total of seven cycles.

TABLE XXVII. Test fluids (series 2, classes H, L, and N) - Continued.

Test no.	Test fluid.	Test procedure
8	Coolant-dielectric fluid synthetic silicate ester base <u>2/</u>	Unmated connectors shall be preconditioned at 175°C for 30 minutes. Immerse connectors fully in room temperature fluid for 1 minute. Remove connectors and allow to stabilize at room temperature for a minimum of 1 hour. Fluid shall be drained from all recesses.
9	ASTM-D4814 (type 1) (or equivalent gasoline)	The wired assembled unmated connectors shall be immersed in the fluid at 25° ± 3°C for a minimum of 5 minutes, removed from the fluid and exposed to free air for 24 ± 2 hours. This conditioning cycle shall be repeated until the connector has been subjected to 5 complete cycles; for a maximum of one cycle, the exposure to free air may be extended to 75 hours.
10	Solvent (a) specified in method 215 of MIL-STD-202	Identical procedure to sample 9.
11	Solvent (b) specified in method 215 of MIL-STD-202	Identical procedure to sample 9.
12	Solvent (c) specified in method 215 of MIL-STD-202	Identical procedure to sample 9.

1/ M2-V Chevron oil or equivalent.

2/ Coolanol 25 or equivalent.

4.6.28.2 Retention system fluid immersion (series 2, classes L and N) (see 3.6.28.2). Connectors shall be unmated and contacts shall be removed. Connectors shall be immersed in the following fluids (one sample per fluid) for 20 hours at room temperature:

<u>Sample number</u>	<u>Test fluid</u>
1	MIL-T-5624 (grade JP-5)
2	Coolanol 25 or equivalent
3	MIL-H-5606
4	MIL-L-7808
5	MIL-L-23699
6	Methyl alcohol
7	Isopropyl alcohol

After removal, excess fluid shall be allowed to drain from the connectors for 4 hours and the contacts shall be reinstalled. The connectors shall then be subjected to the subsequent tests specified in table XXI.

4.6.29 Insert retention (series 1) (see 3.6.29). Connectors, less insert removable grommets or insert supporting accessories, shall be tested in accordance with **EIA 364 test procedure 35** ~~method 2010 of MIL-STD-1344.~~

4.6.30 Insert retention (series 2, class L) (see 3.6.30). Unmated, wired connectors, with backshells removed, shall be tested in accordance with **EIA 364 test procedure 35** ~~method 2010 of MIL-STD-1344~~. The following details shall apply:

- (a) Samples shall be divided into two equal groups and designated A and B. Group A shall have an axial load applied to the mating face and group B shall have an axial load applied to the rear face.

4.6.30.1 Insert retention (series 2, classes H and N) (see 3.6.30.1). Unmated receptacles shall be tested in accordance with **EIA 364 test procedure 35** ~~method 1006 of MIL-STD-1344~~. The following details shall apply:

- (a) Pressure to be applied shall be $100 \text{ lb/in}^2 \pm 1$ percent.
- (b) Pressure shall be applied to the mating face and then to the rear face.

4.6.31 Gage location and retention (crimp type contacts) (see 3.6.31). Applicable test gages shall be installed in 3 randomly selected cavities of each connector. Accessory rear hardware shall be removed, and remaining cavities shall have contacts in place. With the test gages fully seated back against the contact retention device, the axial location of the front end of the gages shall be measured relative to the reference point indication in figure 3. The axial load specified in table XI shall then be applied to individual test gages in both directions. The load shall be applied at a rate of approximately 1 pound per second until the specified load has been reached. Gage displacement shall be measured with respect to the connector shell after an initial load of 2 pounds has been applied to assure that all slack between the gage and the retention device has been removed. For group B inspection, gage displacement measurements are not required, and remaining contact cavities may be empty.

4.6.32 Contact retention (see 3.6.32). Connectors shall be tested in accordance with **EIA 364 test procedure 29** ~~method 2007 of MIL-STD-1344~~. Axial loads shall be in accordance with table XI. The following details shall apply:

- (a) Number of samples – The test shall be performed on 20 percent of the contact complement; but not less than three contacts in each connector half.
- (b) Applied axial load – Preload to 3 pounds maximum. Apply load as specified in table XI.
- (c) Special requirements – Where the test sequence requires maintenance aging prior to contact retention, the contacts which were subjected to maintenance aging shall also be selected for contact retention.
- (d) Axial direction – The applicable forces shall be applied along the longitudinal axes of individual contacts in the direction tending to displace the contacts to the rear.
- (e) Only the contacts to be tested need be installed in the connector.

4.6.32.1 Solder type and class N. Contact displacement shall be measured after the axial load has been removed. For class N connectors, the test shall apply to the pin contact members only.

4.6.32.2 Crimp types. Contact displacement shall be measured with the contact under load, after the load has been applied for a minimum of 5 seconds. Retention of the crimp terminals of class N connectors shall be similarly tested.

4.6.33 Contact engaging and separating forces (series 1) (see 3.6.33). Socket contacts shall be tested in accordance with the contact engagement and separation test of MIL-C-23216. Solder contacts may be tested installed in the connectors.

4.6.34 Probe damage (series 1) (see 3.6.34). socket contacts shall be tested in accordance with **EIA 364 test procedure 25** ~~method 2006 of MIL-STD-1344~~. The following detail shall apply:

- (a) Probe depth shall be $\frac{1}{2}$, $\frac{3}{4}$, and full.

4.6.35 Cover chain, tensile strength (series 1) (see 3.6.35). The protective cover shall be securely held and a tensile static load of 25 pounds shall be applied to the end of the chain for 5 minutes in each direction as specified:

- (a) With the axis of the chain at right angles to the axis of the holding fastener.
- (b) With the axis of the chain in the same axis as that of the fastener.

4.6.36 Altitude immersion (series 2) (see 3.6.36). Mated, wired connectors shall be tested in accordance with **EIA 364 test procedure 03** ~~method 1004 of MIL-STD-1344~~. The following details shall apply:

- (a) Dielectric withstanding voltage and insulation resistance shall be measured as specified in 4.6.10 and 4.6.8 after the third cycle with the connectors still submerged in the solution.

4.6.37 Temperature life (series 2, class H) (see 3.6.37). Mated, wired connectors shall be tested in accordance with **EIA 364 test procedure 17** ~~method 1005 of MIL-STD-1344~~. The following details shall apply:

- (a) Temperature test condition – 6, except contacts shall not carry current.
- (b) Test time condition – D.
- (c) Contact resistance shall be measured in accordance with 4.6.6 at the conclusion of exposure.

4.6.37.1 **Temperature life with contact loading (series 2, classes L (at 200°C), N and W (at 175°C))**. Connectors with removable contacts shall have one mating pair of contacts removed and replaced with contacts crimped to steel core copper wire (copperweld or equivalent) of the appropriate size. The axial location of these contacts shall be measured for conformance with the applicable dimensions shown in figure 3 and a load of 2 pounds applied to seat the contact back against the retention device. The connector shall then be mounted in a fixture as shown in figure 12. A weight equal to 50 percent of the axial load specified in table XI for the applicable contact size shall be suspended freely from each steel core wire. A current of 100 ± 10 milliamperes supplied from a 10.0 Vdc maximum power source shall be applied to the test contacts and a suitable instrument shall be used to monitor the circuit for discontinuity in excess of one microsecond. The connector mounted as shown in figure 11 shall then be subjected to the temperature life test of 4.6.37. After the connectors return to ambient temperature, they shall be unmated and the contact locations remeasured (figure 3) with 2 pounds axial load applied to seat the contact back against the retention device. The tested contacts shall then be replaced with unwired contacts and sealing plugs, and those cavities shall be exempted from subsequent testing.

4.6.38 Ozone exposure (series 2) (see 3.6.38). Unmated, wired connectors shall be tested in accordance with **EIA 364 test procedure 14** ~~method 1007 of MIL-STD-1344~~.

4.6.39 Shell conductivity (series 2, except class A) (see 3.6.39). The dc resistance of the wired, mated, assembled connectors shall be measured from a point on the rear accessory thread of the plug to the mounting flange of the receptacle, or the rear thread of a cable connecting receptacle. The point of measurement on the square flange receptacle shall be adjacent to the mounting holes and adjacent to the "O" ring on the front or mounting side of the flange for the single hole amount receptacle. The dc resistance shall not exceed the values specified in 3.6.39 when measured by the voltmeter-ammeter

method. The applied potential shall be 1-1/2 Vdc maximum. A resistance shall be inserted in the circuit to limit the current to **1 ± .01 ampere**. Probes with spherical ends of .05 inch minimum radius shall be used to make the voltage measurements on the connectors. The probes shall not puncture or otherwise damage the connector finish.

4.6.40 Insert grommet bonding (series 2, class L) (see 3.6.40). The insert assemblies shall be placed in a circulating air oven for a minimum period of 100 hours. The ambient temperature of the air circulating past the assemblies shall be 200 +3 -0°C, **class W, 175 ± 3°C**. At the end of this conditioning period the bonded assemblies shall be cooled to room temperature and the resilient grommets and interfacial seal shall be pulled or torn from the hard dielectric disk. The assemblies shall meet the requirements of 3.6.40.

4.6.41 External bending moment (series 2, class L) (see 3.6.41). The receptacle connector shall be mounted as in normal service to a rigid panel. Before mating the plug connector to the receptacle, an adapter or test torque arm shall be attached as shown on figure 7. After mating the plug and receptacle connectors, the distance "L" from the point of load application "P" shall then be determined as the bending moment listed in table XIII divided by the level arm "L". This load shall be applied at a rate of approximately 10 pounds per second until the required load is achieved. The load so applied shall be held for a period of 1 minute after which the load shall be released. Continuity of the contacts shall be monitored during the test. The test circuit used to monitor this test shall be capable of detecting any discontinuity of 1 microsecond or greater.

4.6.42 Pin contact stability (series 2, class L) (see 3.6.42). The unmated connectors shall have 10 percent (but not less than one) of their pin contacts subjected to this test. Gage pins shall be used to measure displacement. The gage pins shall conform to MS3461. The connector shall be held in a holding device. A force of three pounds shall be applied to the exposed rod as shown on figure 8. The rate of load application shall not exceed one inch per minute. The total pin tip displacement shall be measured as shown on figure 8.

4.6.43 RFI shielding (series 2, RFI plugs only, except class A) (see 3.6.43). The RFI shielding effectiveness of mated connectors with RFI backshells shall be measured in a triaxial radio frequency leakage fixture. The RFI leakage from the conductor inside the connector in the inner coaxial line into the outer coaxial line shall be measured at the frequencies specified in table XV within a frequency accuracy of ± 5 percent. The level of detected signal power shall be indicated by a tunable radio frequency field intensity meter isolated from the test circuit by a 10 dB pad. Care shall be taken to ensure that the signal is a result of RFI leakage from within the mated connector and not due to a faulty termination inside the fixture. All terminations inside the fixture, whether to the RFI backshells or between internal conductors, shall have a leakage at least 10 dB less than the test requirement. The test arrangement shall be as shown in figure 9 and 10. The signal source shall be set to the desired frequency. The signal shall be fed through a 10 dB isolation pad to a parallel circuit consisting of a coaxial switch (DPDT) so connected that the signal can be manually or electronically fed alternately to the fixture and to a variable 100 dB reference attenuator. The attenuator shall be adjustable in 1 dB steps and calibrated to ± 3 dB.

- (a) The inserts may be removed from the connectors under test or the contacts removed and a hole drilled through the inserts to accommodate a center conductor of suitable geometry to provide a good 50 ohm impedance match with the ID of the mated connector shells and RFI backshells. Tapered transitions may be used to provide a means of changing diameters without introducing significant discontinuities in the line. The maximum VSWR in the inner coaxial line shall be 1.5. The outer shell of the test fixture shall be so constructed as to provide a good 50 ohm impedance match with the OD of the mated connector shells, coupling ring and RFI backshells. The maximum VSWR of the outer coaxial line shall be 1.5.

- (b) A sliding circumferential shall be positioned behind the connector on the signal input end of the fixture to provide for tuning the outer coaxial line for maximum output at each test frequency. The allowable travel of this short shall be greater than $\frac{1}{2}$ wave length at the lowest test frequency or 1.5 meters minimum for 100 MHz. The inner coaxial line shall be terminated in a fixed 50 ohm load impedance behind the connector at the output end of the fixture.
- (c) The connectors used to couple together the various elements of the test system shall be of a low leakage type which have a nominal impedance of 50 ohms, a VSWR of less than 1.5, and a minimum leakage attenuation of 100 dB. The output impedance of the signal source and the input impedance of the detector shall be nominally 50 ohms with a maximum VSWR of 1.5. the input and output VSWR of the standard attenuator shall be less than 1.5 in the 20 to 100 dB range.
- (d) The relative signal level in the variable attenuator shall be equaled to that through the leakage fixture by adjusting the attenuator. The signal loss in the fixture can then be read from the setting on the variable attenuator.

4.6.44 RFI finger spring force (series 2, class L, except class A) (see 3.6.44). RFI plugs shall be completely mated and unmated with counterpart receptacles less bayonet pins and inserts. On the initial mating and unmating the axial forces necessary to engage and separate shall be within the values listed in table XVI.

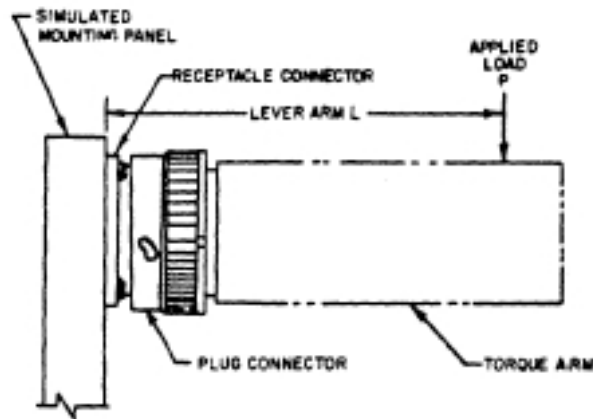
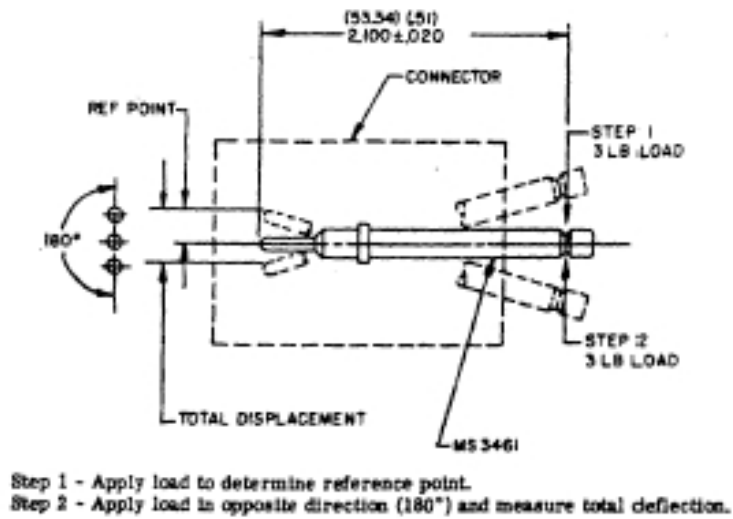


FIGURE 7. External bending moment test setup.



Step 1 – Apply load to determine reference point.
Step 2 – Apply load in opposite direction (180°) and measure total deflection.

FIGURE 8. Pin contact stability test.

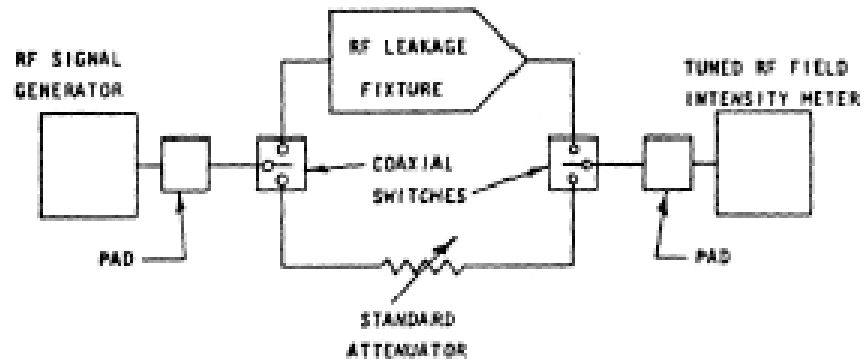
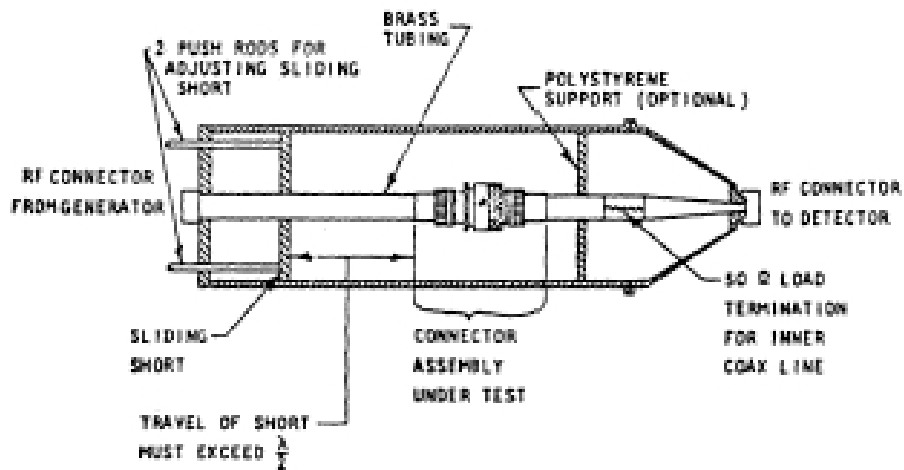


FIGURE 9. Test system for RFI leakage test.

FIGURE 10. RFI leakage test fixture.

4.6.45 Insertion removal tool abuse (series 2, classes L and N) (see 3.6.45). Steps (a), (b), (c), and (d) shall be performed. Separate groups of 5 connect cavities each shall be used for each step.

- (a) Removal tool – The tool shall be inserted as if to remove a contact and a total of 3 pounds axial load shall be applied. With the force applied, the tool shall be rotated 180° and then removed, also removing the contact. The contact shall be reinserted. These steps shall be repeated three times on each of the five contacts selected.
- (b) Insertion tool – The contact shall first be removed. With the insertion end of the tool, insert the contact and continue to press until an axial load of 3 pounds is applied. With the force applied, the tool shall be rotated 180° and then removed. These steps shall be repeated three times on each of the five contacts selected.
- (c) Insertion tool – The contact shall first be removed. With the insertion end of the tool, the contact shall be inserted and an axial load of 10 pounds applied to the tool. These steps shall be performed only once on each of the five contacts selected. A new tool shall be used for each contact.
- (d) Removal tool – The tool shall be inserted as if to remove a contact and a total of 10 pounds axial load shall be applied. The tool shall then be removed, also removing the contact. These steps shall be performed only once on each of the five contacts selected. A new tool shall be used for each contact.

4.6.46 Contact walk-out (series 2, classes L and N) (see 3.6.46). Two contacts in each plug and receptacle shall be tested. The contacts shall be crimped to stranded steel cable of an appropriate size and installed in the connector. The unmated connector shall be mounted in a test fixture as shown in figure 12. A 3 pound load shall be applied to the cable. One 360° rotation of the fixture with the connector mounted shall constitute one cycle. The connector shall be subjected to 100 cycles at a rate of 10 to 20 cycles per minute.

4.6.47 Accessory thread strength (series 2, class L) (see 3.6.47). The mated connector shall be mounted as in normal service to a rigid panel. The torque wrench shall be attached as shown in figure 13. After mating the plug and receptacle connectors, a torque shall be applied to the accessory end of the plug and receptacle connectors, a torque shall be applied to the accessory end of the plug at a rate of approximately 10 pounds per second until the required torque is achieved (table XXVIII). The load so applied shall be held for a period of 1 minute after which the load shall be released. The test shall be repeated on the accessory end of the receptacle. The connectors shall then be unmated and inspected to 3X magnification for damage or breakage.

TABLE XXVIII. Accessory thread strength.

Shell size	Minimum torque in/lb
8	75
10	100
12	140
14	150
16	150
18	150
20	175
22	175
24	175

4.6.48 Magnetic permeability (see 3.3.3). The wired, assembled, and fully mated connectors shall be measured for relative permeability with an indicator conforming to **ASTM A342 MIL-I-17214**.

4.6.49 Final examination of product. The marking on connectors and accessories shall be legible after all tests specified in tables XVIII, XIX, XX, and XXI.

4.6.50 Impact (drop) (see 3.6.48). The connector shall be wired as intended for normal service, complete with accessories and tested in accordance with EIA 364 test procedure 42 ~~method 2015 or MIL-STD-1344~~ at a drop height of 4 feet, service class, light with a total of eight drops.

4.6.51 Finish thickness (series 1 solder contacts) (see 3.6.48).

4.6.51.1 Overall finish (see 3.3.5.1.1). Finish thickness shall be measured in accordance with SAE-AMS 2422 ~~MIL-G-45204~~. Measurements shall be made on the external surfaces of the contact body at the locations shown of figure 14.

4.6.51.2 Localized finish (see 3.3.5.1.2). Finish thickness shall be measured in accordance with SAE-AMS 2422 ~~MIL-G-45204~~. Measurements shall be made at point A or D of figure 15, as applicable.

4.6.52 Humidity - temperature cycling (series 1, localized gold finish contacts only (see 3.6.49)). Wired mated contacts shall meet the requirements of 3.6.49 when tested in accordance with EIA 364 test procedure 31 ~~method 1002 of MIL-STD-1344, type II~~, method IV, test condition A. Current applied to contacts during exposure shall be 100 ±10 milliamps.

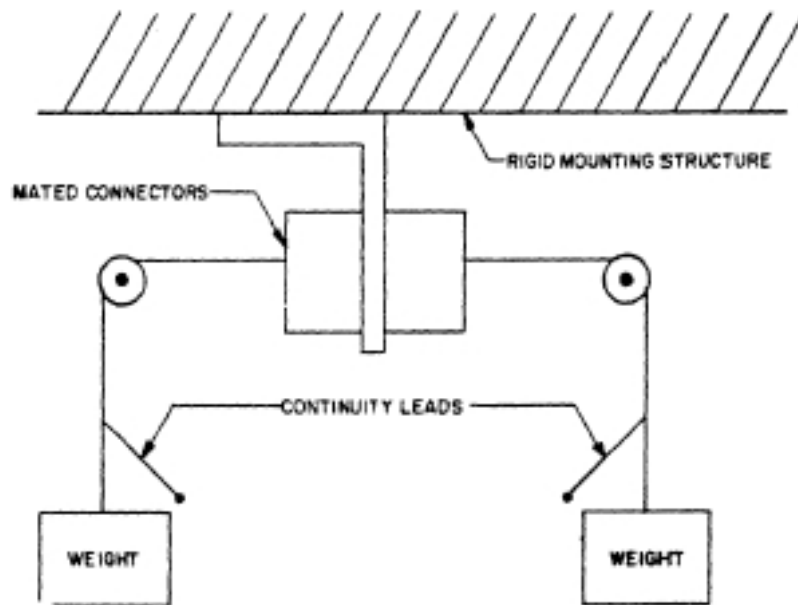
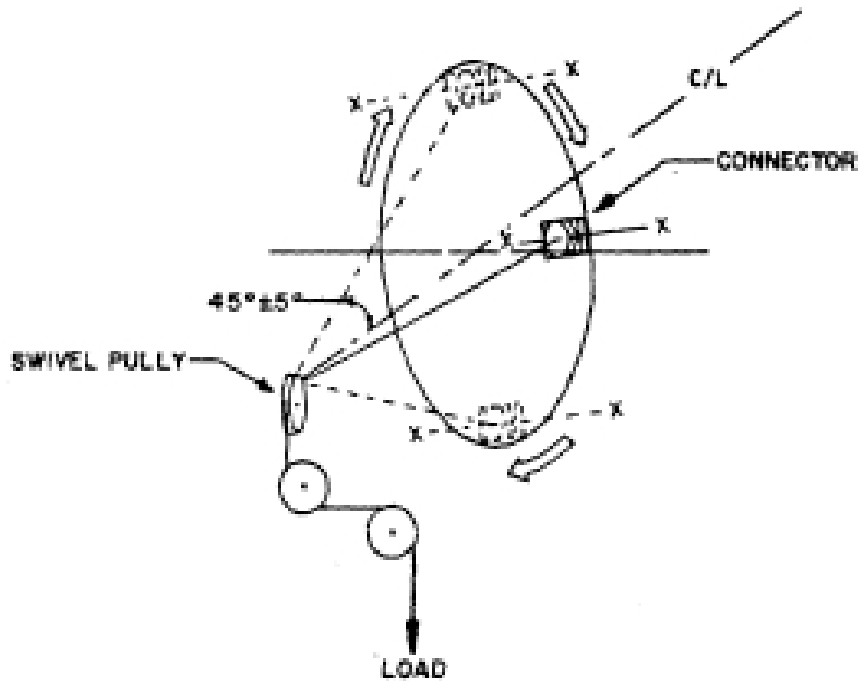


FIGURE 11. Temperature life with contact retention.



NOTE: Connector axis (ref X-X) to remain constant during rotation.

NOTE: Connector axis (ref X-X) to remain constant during rotation.

FIGURE 12. Contact walk-out.

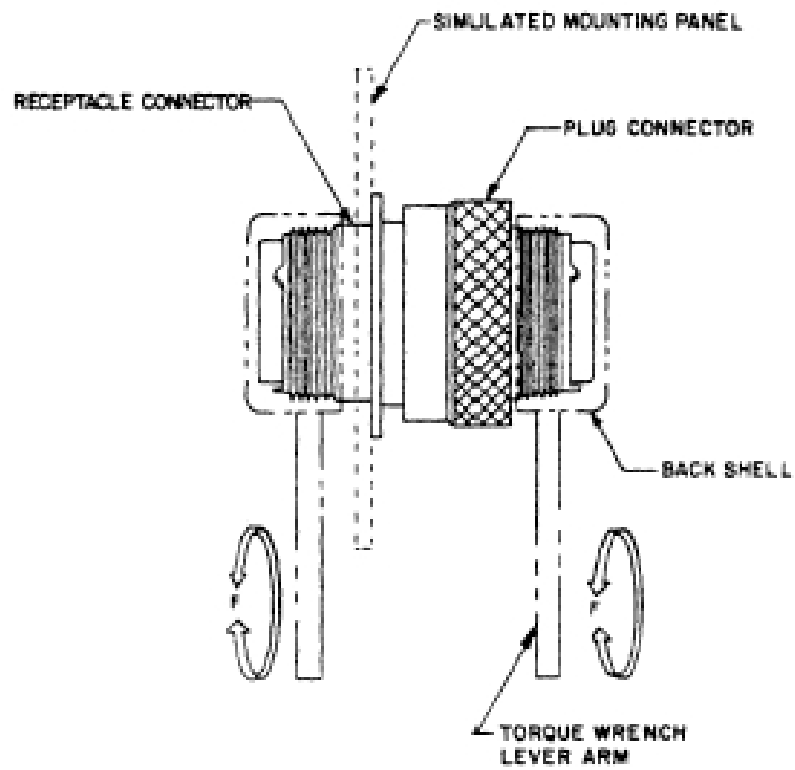
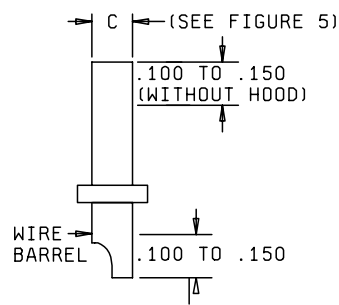
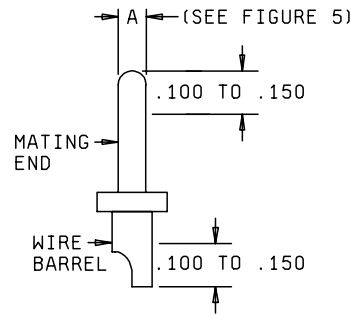


FIGURE 13. Rear accessory thread torque test setup.

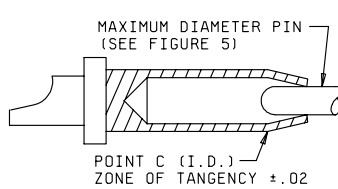


14A. Socket contacts.

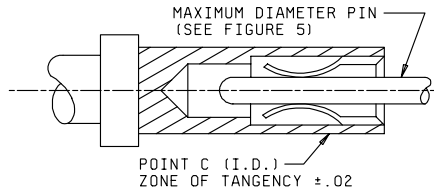


14B. Pin contacts.

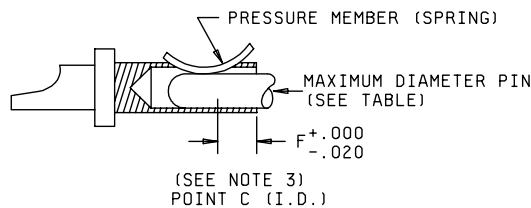
FIGURE 14. Plating thickness measurement – overall finish (series I, solder).



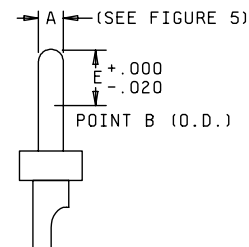
15A. Socket contacts with integral pressure member.



15C. Socket contact with separate pressure member as primary current carrying interface.



15B. Socket contact with separate pressure members.



15D. Pin contacts.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. $F = .290$, $E = .290$; F equals length of maximum electrical contact (wiping) area plus $.020$ (0.51 mm) minimum. Maximum wipe shall be equal to maximum E of mating pin engagement minus the spherical radius.

FIGURE 15. Plating thickness measurement - localized finish (series I, solder)."

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use (series 1). The various classes and types of connectors are intended for application as follows:

- (a) Classes E, F, J, and P connectors are intended for use in environment-resisting applications where the operating temperature range of -55° to 125°C is experienced. Crimp contact connectors have the additional advantage of possessing removable crimp-type contacts. Class J connectors are intended for use with light-weight, single-jacketed cable.
- (b) Class H receptacles are intended for use in applications wherein pressures must be contained by the connectors across the walls or panels on which they are mounted.
- (c) Crimp contact connectors should have contacts installed in all positions when the connector is wired. Sealing plugs should be installed in the grommet holes when no wire is attached to the contact in grommet sealed connectors.
- (d) The potting form should remain with the connector after potting.
- (e) Counterpart solder and crimp contact connectors are intended to be intermateable. Moisture resistance capability is then reduced to that of the solder contact connector.
- (f) If air leakage requirements are critical, a resilient insert, solder contact receptacle, a through-bulkhead receptacle, or class H receptacle should be used, or the connector should be potted.
- (g) For finished wire diameters less than specified in table II, shrink-fit sleeving should be used over the wire.
- (h) Where two or more wires are used in a solder cup or wire barrel, grommet sealing is not obtainable. Wires should be potted if sealing is required.

6.2 Intended use (series 2).

- (a) Connector backshells must be installed to meet the specified moisture sealing requirements.
- (b) Class A connectors are intended for use in application where 200°C temperature, grommet seal, and nonconductive finish are required.
- (c) Class L connectors are intended for use in environment resisting applications at 200°C temperature and are fluid resistant. These connectors have wire sealing grommets.
- (d) Class H and N receptacles are intended for use in applications wherein pressure must be contained by the connectors across walls or panels on which they are mounted. They have fluid resistant insert face seals. In addition, class N receptacles have crimp type terminations.
- (e) Mechanical strain reliefs are intended for use where a saddle type clamp is desired.
- (f) Shielded contacts are intended for use with shielded and jacketed single conductor cables, and may be used with certain coaxial cables when impedance matching is not required. Shielded contacts are not furnished with connectors, and must be ordered separately when

required. Shielded contacts will not intermate with standard size 12 contacts or with series 1 shielded contacts. It is the user's responsibility to assure mating contact compatibility at time of contact installation.

- (g) RFI backshell and grounding fingers on plug are available in class L and provide RFI shielding.
- (h) Class W connectors are intended for use in salt spray environments providing a corrosive resistant shell, conductive finish, and fluid resistance at 175°C service temperature.**

6.3 Ordering data. Procurement documents should specify:

- (a) Title, number, and date of this specification.
- (b) Title, number, and date of the applicable MS standard and the complete part number.
- (c) For indirect shipment, these connectors may be furnished without contacts, grommet sealing plugs or insertion and removal tools (see 3.4.1, 3.4.1.2.3, 3.4.1.4.3, and 3.4.5.7).
- (d) Special finish.
- (e) Shielded contacts.

6.3.1 Accessory hardware. Accessory hardware, such as dust covers or mounting hardware especially designed for these connectors, is shown on the separate drawings.

6.3.2 Crimp contacts. Crimp contacts may be ordered in bulk in accordance with MIL-C-39029.

6.4 Definitions (see MIL-STD-1353).

6.4.1 Alternate insert position. The inner position illustrated in MIL-STD-1669 should be termed "normal" position. Where possible, the order of design selection of insert position should be "normal" first. This should be followed by the alternate positions as needed in the order in which they are presented in the tabulation included in the detail document covering the arrangement.

6.4.2 Backshell. The backshell consists of an accessory nut end follower. The accessory nut is captivated to the follower and is used to attach the backshell to the connector (except the RFI backshell).

6.4.3 Overall finish. A finish having a specified minimum thickness applied (i.e., barrel plating techniques, non-selective types, etc.) on all external plating surface diameters except for corners, which assures the specified performance of the contact.

6.5 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in the Qualified Products List, whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from Defense Supply Center Columbus, ATTN: DESC-VQ, 3990 East Broad Street, Columbus, Ohio 43213-1199.

6.5.1 Application information. The information shown on figure 16 is for guidance in design and application. The flashover voltages shown on figure 16 do not include corona or any safety factor.

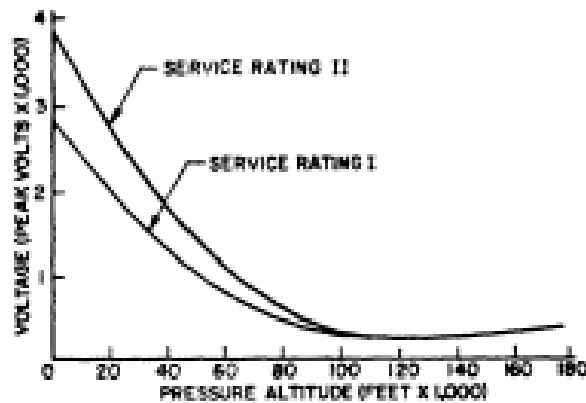


FIGURE 16. Typical flashover voltage vs altitude on unmated Miniature connectors (see 6.6).

6.6 Intermetallic contact. The finishing of metallic areas to be placed in intimate contact by assembly presents a special problem, since intermetallic contact of dissimilar metals results in electrolytic couples which promote corrosion through galvanic action. To provide the required corrosion protection, intermetallic couples are restricted to those permitted by table XXIX. Table XXIX shows metals and alloys (or plates) by groups which have common electromotive forces (EMF) within 0.05 volt when coupled with a saturated calomel electrode in sea-water at room ambient temperatures. All members of a group are considered as completely compatible, one with the other. Compatible couples between groups have been specified in table XXIX based on a potential difference of 0.25 volt maximum. To simplify any arithmetic involved, table XXIX shows, in addition to EMF against a calomel electrode, a derived "anodic index" with group 1 (gold, etc) as 0 and group 18 (magnesium, etc) as 175. Subtraction of a lower group anodic index gives the EMF difference in hundredths of a volt.

6.6.1 Groups. Table XXIX sets up 18 primary groups. It may be noted that neither the metallurgical similarity or dissimilarity of metals is the parameter for selection of compatible couples. All members within a group, regardless of metallurgical similarity, are considered inherently nonsusceptible to galvanic action, when coupled with any member within the group; for example, such dissimilar metals as platinum and gold. Similarly, such basically dissimilar alloys as austenitic stainless steel, silver-solder, and low brass (all members of group 5) are inherently nonsusceptible when coupled together.

6.6.2 Compatibility graphs. Permissible couple series are shown in table XXIX by the graphs at the right. Members of groups connected by lines will form permissible couples. A "O" indicates the most cathodic member of each series, a "O" an anodic member, and the arrow indicates the anodic direction.

6.6.3 Selection of compatible couples. Proper selection of metals in the design of equipment will result in fewer intermetallic contact problems. For example, for sheltered exposure, neither silver nor tin require protective finishes. However, since silver has an anodic index of 15 and tin 65, the EMF generated as a couple is 0.50 volt, which is not allowable by table XXIX. In this case, other metals or plates will be required. It should be noted that, in intermetallic couples, the member with the higher anodic index is anodic to the member with the lower anodic index and will be susceptible to corrosion in the presence of an electrolytic medium. If the surface area of the cathodic part is significantly greater than that of the anodic part, the corrosive attack on the contact area of the anodic part may be greatly intensified. Material selection for intermetallic contact parts, therefore; should establish the smaller part as the cathodic member of the couple, whenever practicable.

TABLE XXIX. Compatible couples (see 6.7).^{1/}

Group No.	Metallurgical category	EMF (volt)	Anodic Index (0, 01 v)	Compatible couples
1	Gold, solid and plated; gold-platinum alloys/ wrought platinum (most cathodic)	+0.15	0	
2	Rhodium plated on silver-plated copper	+0.05	10	
3	Silver, solid or plated; high silver alloys	0	0	
4	Nickel, solid or plated; monel metal, high nickel-copper alloys	-0.15	30	
5	Copper, solid or plated; low brasses or bronzes; silver solder; German silver; high copper-nickel alloys; nickel-chromium alloys; austenitic corrosion-resistant steels	-0.20	35	
6	Commercial yellow brasses and bronzes.	-0.25	40	
7	High brasses and bronzes; naval brass; Muntz metal	-0.30	45	
8	18 percent chromium type corrosion-resistant steels	-0.35	50	
9	Chromium, plated; tin, plated; 12 percent chromium type corrosion-resistant steels	-0.45	60	
10	Tin-plate; terneplate; tin-lead solder	-0.50	65	
11	Lead, solid or plated; high lead alloys	-0.55	70	
12	Aluminum, wrought alloys of the duralumin type	-0.60	75	
13	Iron, wrought, gray, or malleable; plain carbon and low alloy steels, armo iron	-0.70	85	
14	Aluminum, wrought alloys other than duralumin type; aluminum, cast alloys of the silicon type	-0.75	90	
15	Aluminum, cast alloys other than silicon type; cadmium, plated and chromated	-0.80	95	
16	Hot-dip-zinc plate; galvanized steel	-1.05	120	
17	Zinc, wrought; zinc-base die-casting alloys; zinc, plated	-1.10	125	
18	Magnesium and magnesium-base alloys, cast or wrought (most anodic)	-1.60	175	

^{1/} Compatible couples – potential difference of 0.25 volt maximum between groups.

6.6.4 Plating. When base metals intended for intermetallic contact form couples not allowed by table XXIX, they are to be plated with those metals which will reduce the potential difference to that allowed by table XXIX.

6.7 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

6.8 Patent and copyright notice.

- (a) The Government has a royalty-free license under U. S. Patents 2,563,712 and 2,984,811 owned by the Bendix Corporation and under pertinent patent applications owned by the Deutsch Company for the benefit of manufacturers of the items called for in this specification and related military standards either for the Government or for use in equipment to be delivered to the Government.
- (b) Any portion of this specification and related military standards which may be covered by copyrights owned by the Bendix Corporation or the Deutsch Company are reprinted with the express permission of the said copyright owners.

~~6.5 Dimensions. Dimensions are in inches.~~

~~6.6 Metric equivalents. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.~~

TABLE XXX. Cross reference.

MIL-C-83723 series I and MIL-C-26482 Connectors cross reference table		
MIL-C-83723 Specification sheet no.	Class	Superseded by
1	R	MS3470L
2	R	MS3470L
3	R	MS3472L
4	R	MS3472L
5	R	MS3474L
6	R	MS3474L
7	R	MS3471L
8	R	MS3471L
9	H	MS3440H
10	H	MS3440H
11	H	MS3443H
12	H	MS3443H
13	R	MS3476L
14	R	MS3476L
42	R	MS3475L
43	R	MS3475L

NOTE: Class R superseded by class L.

6.9 Military unique statement. This connector is military unique because it is an environment resisting, miniature, quick disconnect circular connector, capable of operating in high shock, high vibration and high temperature environments as well as meeting the salt spray corrosion requirements of this specification.

6.10 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. Table XXXI lists the Environmental Protection Agency (EPA) top seventeen hazardous materials targeted for major usage reduction. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see section 3).

TABLE XXXI. EPA top seventeen hazardous materials.

Benzene	Dichloromethane	Tetrachloroethylene
Cadmium and Compounds	Lead and Compounds	Toluene
Carbon Tetrachloride	Mercury and Compounds	1,1,1 - Trichloroethane
Chloroform	Methyl Ethyl Ketone	Trichloroethylene
Chromium and Compounds	Methyl Isobutyl Ketone	Xylenes
Cyanide and Compounds	Nickel and Compounds	

6.11 Guidance on use of alternative parts with less hazardous or nonhazardous materials.

This specification provides for a number of alternative plating materials via the PIN. Users should select the PIN with the least hazardous material that meets the form, fit and function requirements of their application.

6.12 Subject term (keyword) listing.

Contact
Coupling, bayonet
Crimp
Front release
Jam-nut
Rear release
Localized finish
Overall finish
Solder

Concluding material

Custodians:
 Army – CR
 Navy – AS
 Air Force – 11
 DLA – CC

Preparing activity:
 DLA – CC

Review activities:
 Army – AR, AV
 Navy – EC, SH, TD
 Air Force – 99

(Project 5935-4656)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://www.dodssp.daps.mil>.

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-001.

INCH-POUND

MS3110E
DRAFT
SUPERSEDING
MS3110D
15 December 1998

DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES 1, SOLDER TYPE, WALL MOUNTING, BAYONET COUPLING

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998. For new design, use MS3470.

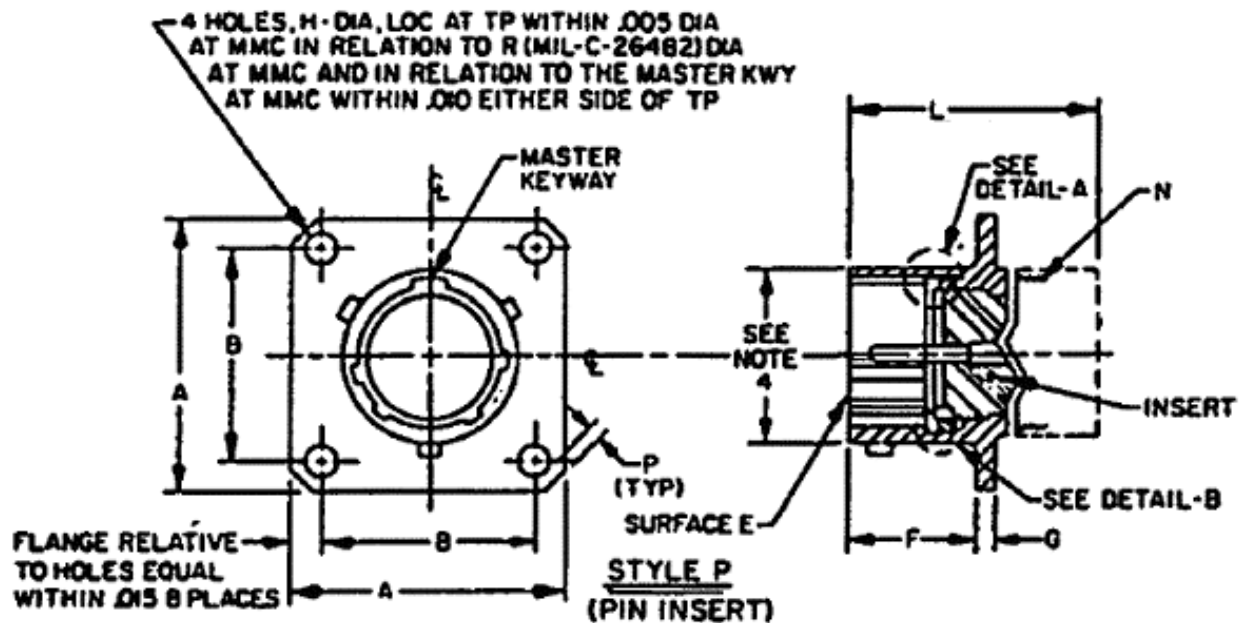
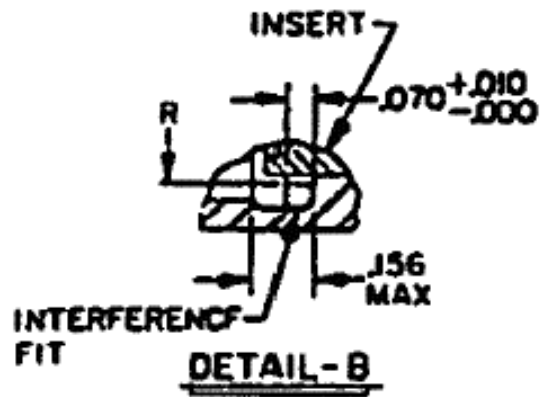


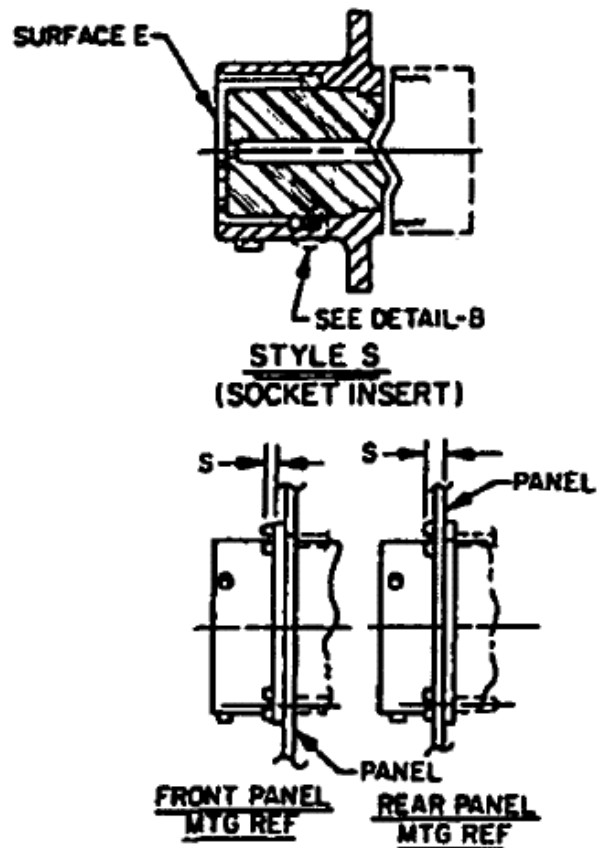
FIGURE 1. Receptacle, classes E, F, J and P.



Shell size	A max length	B (TP) Mounting Holes	F + .031 - .000 Mounting Flange Location	G $\pm .016$ Thick Mounting Flange	H $\pm .005$ Dia Mounting Holes
8	.828	.594	.431	.062	.120
10	.954	.719			
12	1.047	.812			
14	1.141	.906			
16	1.234	.969			
18	1.328	1.062			
20	1.453	1.158	.556	.094	.147
22	1.578	1.250			
24	1.700	1.375	.589		

FIGURE 1. Receptacle, classes E, F, J and P - Continued.

Shell size	N UNEF-2A Accessory Thread	P Min Edge Distance	R Max ID Gasket	S Max
8	.4375-28	.035	.329	.087
10	.5625-24		.457	
12	.6875-24		.564	
14	.8125-20		.689	
16	.9375-20		.814	
18	1.0625-18		.907	
20	1.1875-18	.147	1.039	.212
22	1.3125-18		1.164	
24	1.4375-18		1.289	

FIGURE 1. Receptacle, classes E, F, J and P - Continued.

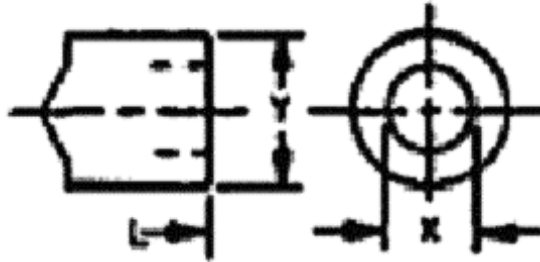
MS3110E

NOTES:

1. Dimensions are in inches.
3. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.
4. Intermateability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 1. Receptacle, classes E, F, J and P - Continued.

MS3110E



Shell size	L Max Overall Length	X Dia Min ID	Y Dia Max OD
8	1.328	.259	.608
10		.359	.734
12		.469	.858
14		.589	.984
16		.727	1.110
18		.779	1.234
20	1.531	.901	1.360
22		1.009	1.484
24	1.594	1.123	1.610

FIGURE 2. Receptacle, rear accessories configurations, class E.

Shell size	L Max Overall Length	Y Max	N (g) ± .010 Free Dia	ZZ Screw Threads	YZ (h) Lockwashers NASM 35338 OR AN936 TYPES
8	1.922	.828	.125	6-32 UNC	NASM 35338
10		.891	.188		B6L OR -6L
12		1.016	.312		AN936
14		1.161	.375		A6B OR -A6
16	2.047	1.203	.500	8-32 UNC	NASM 35338
18	2.078	1.469	.625		B8L OR -8L
20	2.344		.625		AN936
22		1.656	.750		A8B OR -A8
24	2.406	1.750	.800		

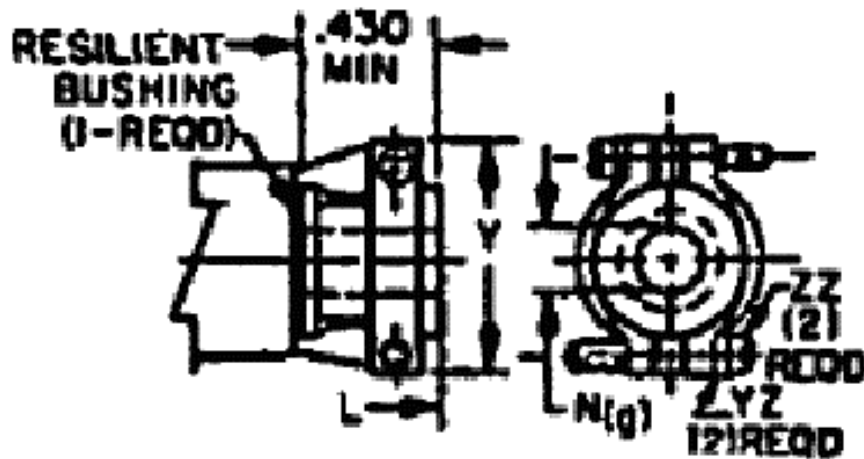


FIGURE 3. Receptacle, rear accessories configurations, class F.

Shell size	X Dia Min Open	Y Max	V Max Closed
8	.234	.828	.157
10	.297	.891	.187
12	.422	1.016	.281
14	.547	1.161	.325
16	.609	1.203	.356
18	.734	1.469	.456
20			.519
22	.922	1.656	
24	.984	1.750	.657

Dimensions with bushing removed

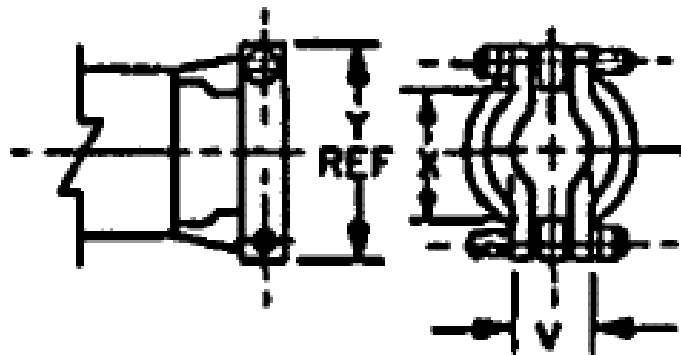
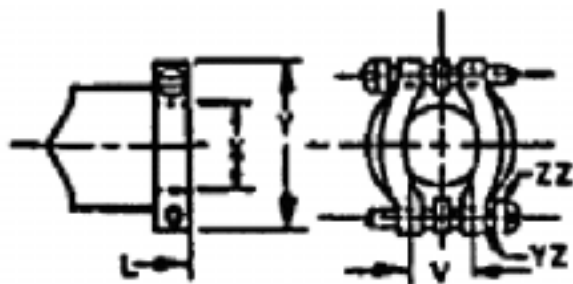


FIGURE 3. Receptacle, rear accessories configurations, class F - Continued.



Shell Size	L Max Overall length	V Max Closed	X ID Gland Seal Min Range		Y Dia Max	ZZ Screw Threads	YZ (h) Lockwashers NASM 35338 OR AN936 TYPES
			Min	Max			
8	2.271	.157	.169	.230	.828	6-32 UNC	NASM 35338 B6L OR -6L AN936 A6B OR -A6
10		.187	.205	.312	.891		
12	2.411	.281	.338	.442	1.016		
14	2.599	.325	.416	.539	1.161		
16	2.943	.356	.550	.616	1.203		
18	3.172	.456	.600	.672	1.469	8-32 UNC	NASM 35338 B8L OR -8L AN936 A8B OR -A8
20	3.610	.519	.635	.747			
22	3.766		.670	.846	1.656		
24	3.985	.657	.760	.854	1.750		

FIGURE 4. Receptacle, rear accessories configurations, class J.

Shell Size	L max overall length	X dia min	Y dia max	PP min
8	1.453	.317	.608	.250
10		.434	.734	
12		.548	.858	
14		.673	.984	
16		.798	1.110	
18		.899	1.234	
20	1.672	1.024	1.360	
22		1.149	1.484	
24	1.734	1.274	1.610	

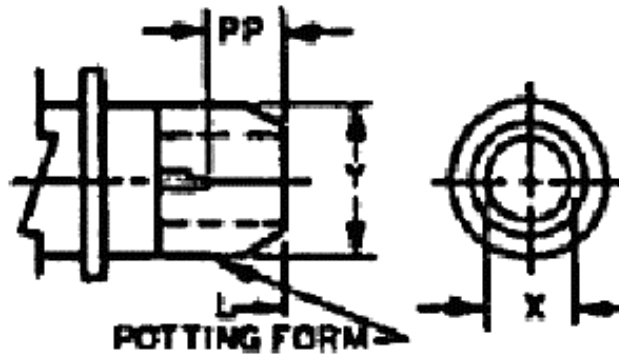


FIGURE 5. Receptacle, rear accessories configurations, class P.

MS3110E

NOTES:

1. Dimensions are in inches.
2. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.
3. Intermateability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 2. Receptacle, rear accessories configurations, class P - Continued.

REQUIREMENTS:

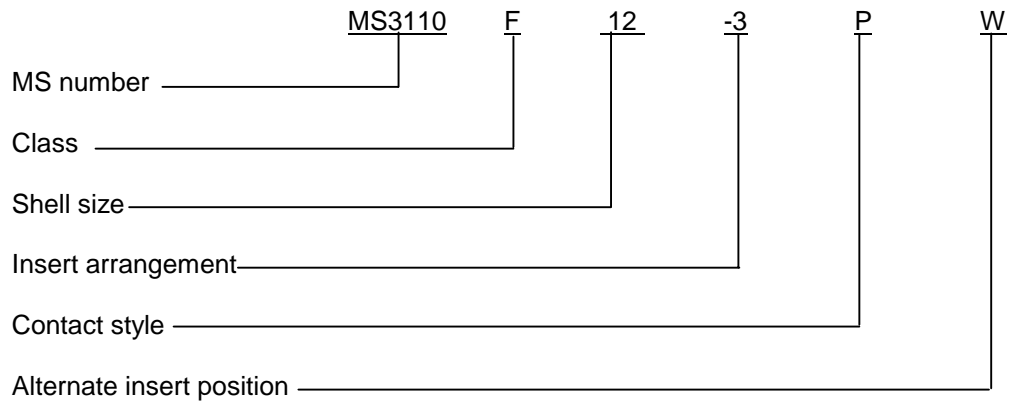
Dimensions and configuration: See figures 1 and 2.

Connector mating: This connector mates with MS3111, MS3116, MS3121 and MS3126.

For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-XXXX-XXX)

Review activities:

Army - AV
Navy - EC, SH

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-002.

INCH-POUND

MS3111D
DRAFT
SUPERSEDING
MS3111C
15 December 1998

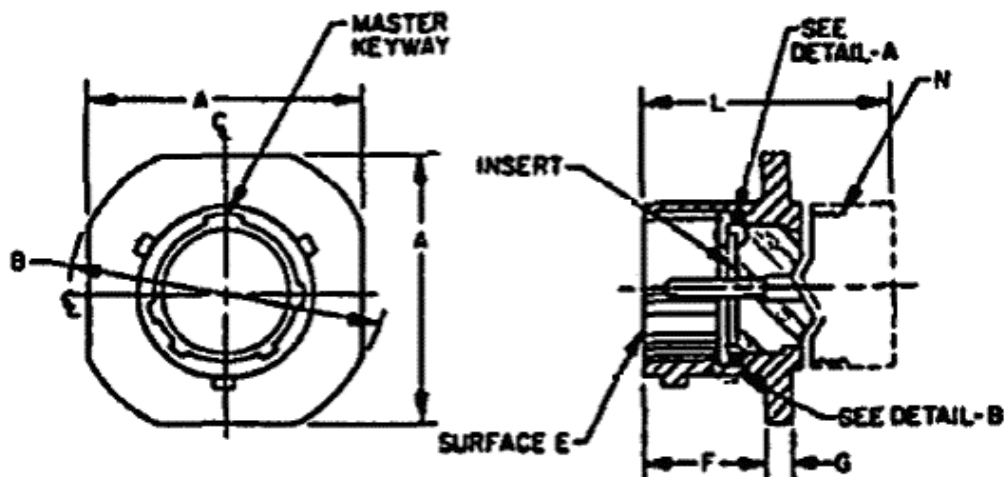
DETAIL SPECIFICATION SHEET

CONNECTORS, PLUG, ELECTRICAL, SERIES I, SOLDER TYPE, CABLE CONNECTING, BAYONET COUPLING, CLASSES E, F, J, AND P

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998. For new design, use MS3476.



Style P, pin insert

FIGURE 1. Plug, styles P and S, pin and socket inserts.

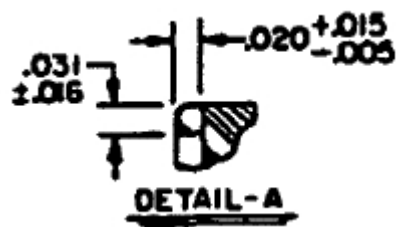
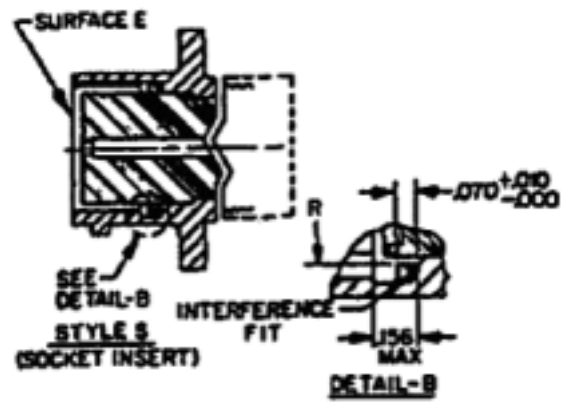


FIGURE 1. Plug, styles P and S, pin and socket inserts - Continued.

MS3111D

Shell size	A max length	B dia $\pm .020$ Across Flange Corners	F $+ .031$ $- .000$ Mounting Flange Location	G $\pm .016$ Thick Mounting Flange	N UNEF-2A Accessory Thread	R Max ID Gasket
8	.828	.938	.400	.094	.4375-28	.329
10	.954	1.062			.5625-24	.457
12	1.047	1.156			.6875-24	.564
14	1.141	1.250			.8125-20	.689
16	1.234	1.344			.9375-20	.814
18	1.328	1.438			1.0625-18	.907
20	1.453	1.562	.535	.115	1.1875-18	1.039
22	1.578	1.688			1.3125-18	1.164
24	1.700	1.812	.558		1.4375-18	1.289

NOTES:

1. Dimensions are in inches.
2. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.
3. For insert arrangements, see MIL-STD-1669.
4. Interchangeability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 1. Plug, styles P and S, pin and socket inserts - Continued.

MS3111D

Shell size	L Max Overall Length	X Dia Min ID	Y Dia Max OD
8	1.328	.259	.608
10		.359	.734
12		.469	.858
14		.589	.984
16		.727	1.110
18		.779	1.234
20	1.531	.901	1.360
22		1.009	1.484
24	1.594	1.123	1.610

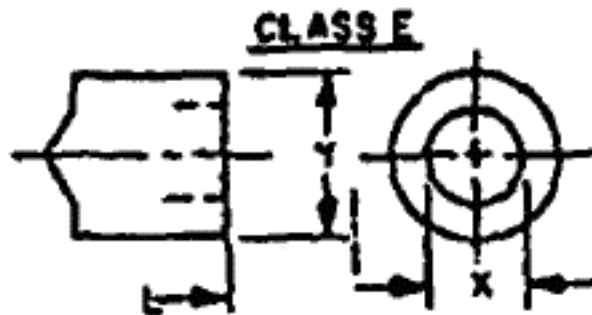
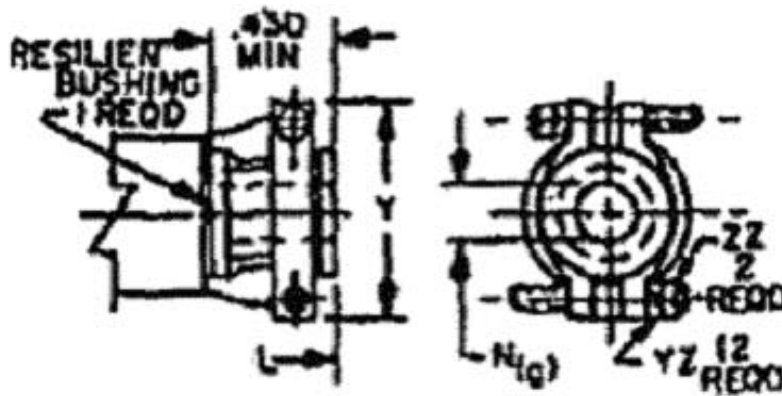


FIGURE 2. Plug, rear accessories configurations, class E.

MS3111D

Shell size	L Max Overall Length	Y Dia Max	N (h) ± .010 g Free Dia	ZZ Screw Threads	YZ (h) Lockwashers NASM 35338 OR AN936 TYPES
8	1.922	.828	.125	6-32 UNC	NASM 35338 B6L OR -6L AN936 A6B OR -A6
10		.891	.188		
12		1.016	.312		
14		1.161	.375		
16	2.047	1.203	.500		
18	2.078	1.469	.625		
20	2.344		.625		
22		1.656	.750		
24	2.406	1.750	.800		



(g): Use MS3420 bushing if reduced opening is required.
(h): Lock washers may be captive.

FIGURE 3. Plug, rear accessories configurations, class F.

Shell size	X Dia Min Open	V Max Closed
8	.234	.157
10	.297	.187
12	.422	.281
14	.547	.325
16	.609	.356
18	.734	.456
20		.519
22		
24	.984	.657



Dimensions with bushings removed

FIGURE 3. Plug, rear accessories configurations, class F - Continued.

MS3111D

Shell Size	L Max Overall length	V Max Closed	X ID Gland Seal Min Range		Y Dia Max	ZZ Screw Threads	YZ (h) Lockwashers NASM 35338 OR AN936 TYPES
			Min	Max			
8	2.271	.157	.168	.230	.828	6-32 UNC	NASM 35338 B6L OR -6L AN936 A6B OR -A6
10		.187	.205	.312	.891		
12	2.411	.281	.338	.442	1.016		
14	2.599	.325	.416	.539	1.141		
16	2.943	.356	.550	.616	1.203		
18	3.172	.456	.600	.672	1.469		NASM 35338 B8L OR -8L AN936 A8B OR -A8
20	3.610	.519	.635	.747			
22	3.766		.670	.846	1.656		
24	3.985	.657	.760	.894	1.750		

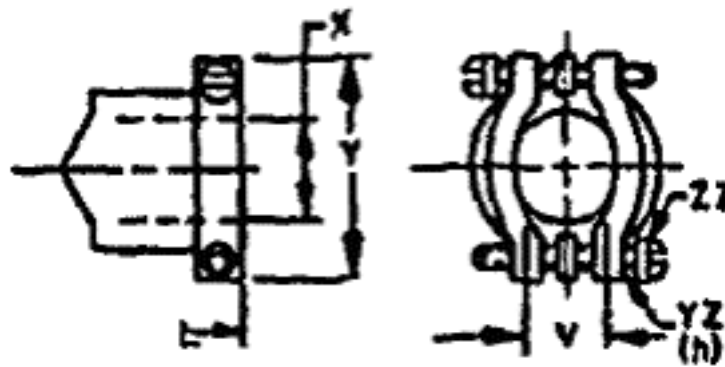


FIGURE 4. Plug, rear accessories configurations, class J.

Shell Size	L max overall length	X dia min id	Y dia max od	PP min
8	1.453	.317	.608	.250
10		.434	.734	
12		.548	.858	
14		.673	.984	
16		.798	1.110	
18		.899	1.234	
20	1.672	1.024	1.360	
22		1.149	1.686	
24	1.734	1.274	1.610	

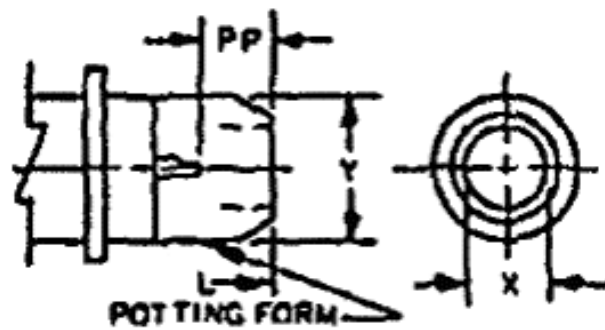


FIGURE 5. Plug, rear accessories configurations, class P.

MS3111D

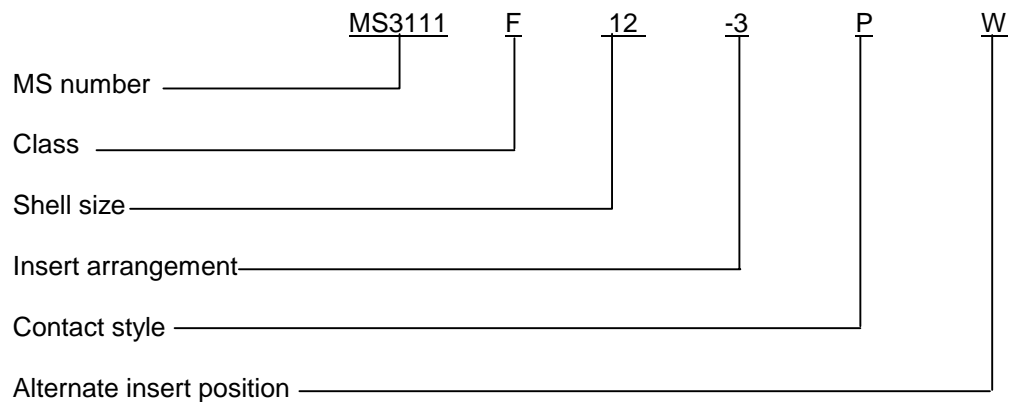
REQUIREMENTS:

Dimensions and configuration: See figures 1 through 5.

Connector mating: This connector mates with MS3110, MS3112 through MS3115, MS3119, MS3120, MS3122, MS3124, MS3127 and MS3128.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-002)

Review activities:

Army - AV
Navy - EC, SH

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-003.

INCH-POUND

MS3112H
DRAFT
SUPERSEDING
MS3112G
15 December 1998

DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES 1, BOX MOUNTING, FLANGE, BAYONET COUPLING, SOLDER CONTACT

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998. For new design, use MS3470.

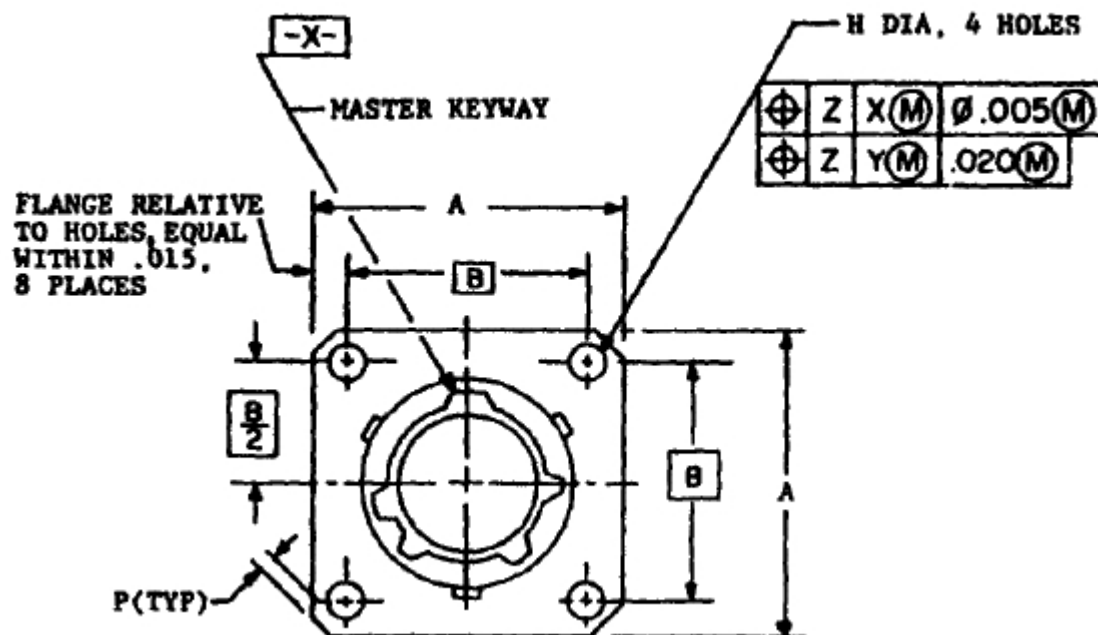


FIGURE 1. Receptacle.

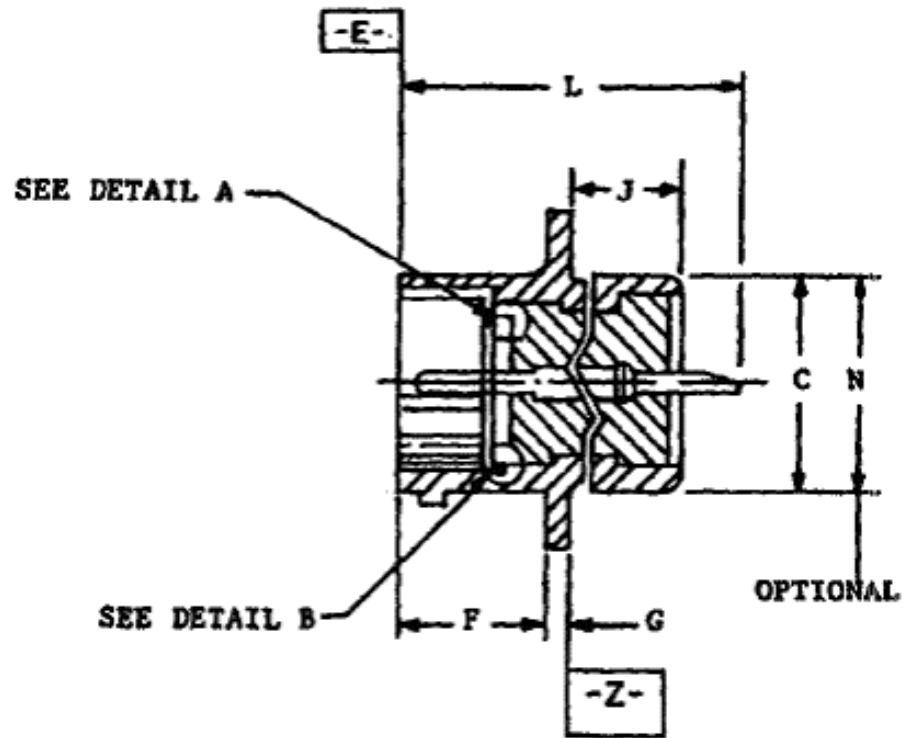


FIGURE 1. Receptacle - Continued.

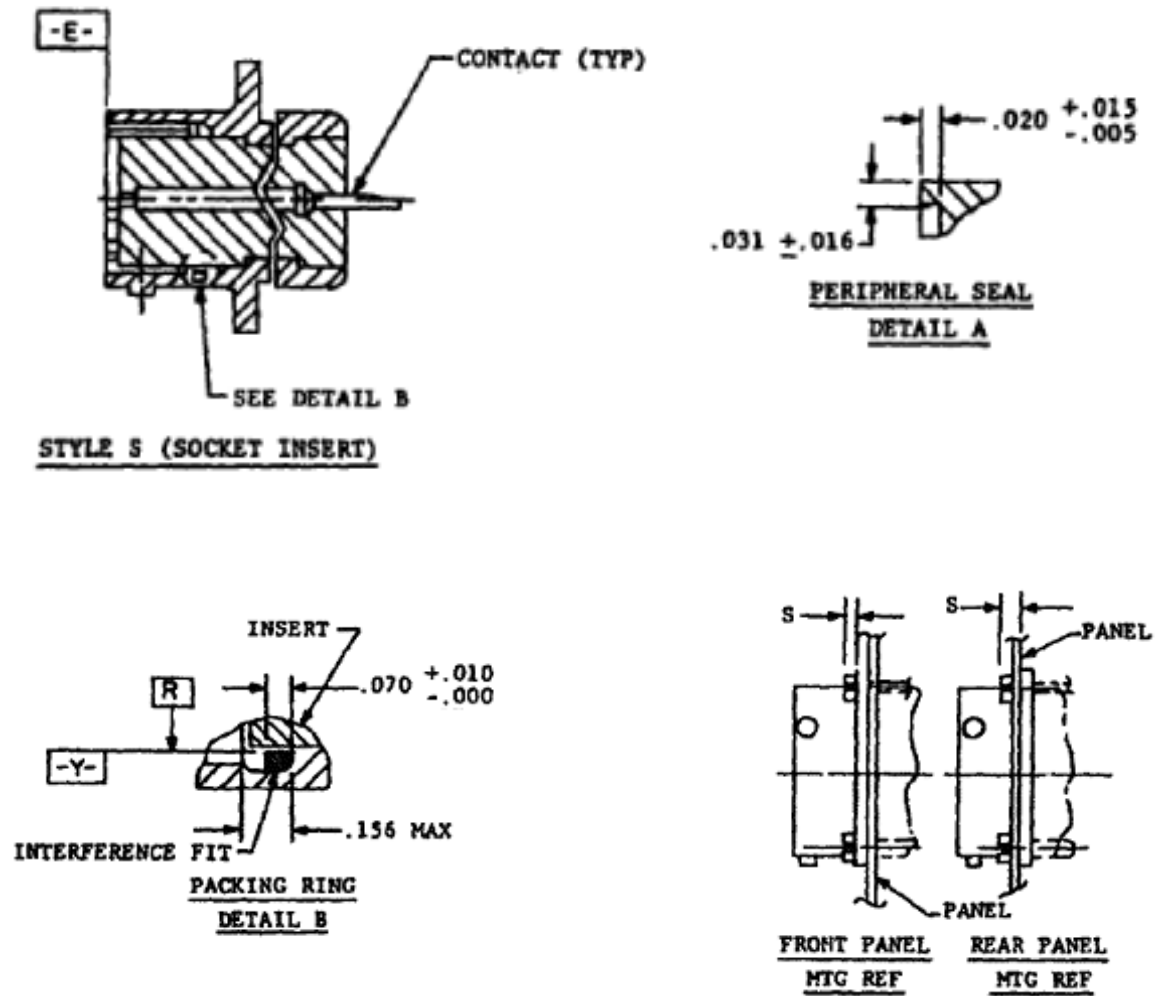


FIGURE 1. Receptacle - Continued.

MS3112H

Shell size	A max length	B (TP) Φ - Φ Mounting Holes	C + .031 - .016 OD	F + .031 - .000 Mounting Flange Location	G \pm .016 Thick Mounting Flange	H \pm .005 Dia Mounting Holes
8	.828	.594	.438	.431	.062	.120
10	.954	.719	.562			
12	1.047	.812	.688			
14	1.141	.906	.812			
16	1.234	.969	.938			
18	1.328	1.062	1.062	.556	.094	.147
20	1.453	1.156	1.188			
22	1.578	1.250	1.312			
24	1.703	1.375	1.438	.589		

Shell size	J Max	L Max Overall Length	N UNEF-2A Thread Optional	P Min Edge Distance	R Max Packing Ring	S Max
8	.354	.978	.4375-28	.035	.329	.087
10			.5625-24		.457	
12			.6875-24		.564	
14			.8125-20		.689	
16			.9375-20		.814	
18			1.0625-18		.907	
20	.417	1.196	1.1875-18	.050	1.039	.212
22			1.3125-18		1.164	
24			1.4375-18		1.289	

FIGURE 1. Receptacle - Continued.

MS3112H

NOTES:

1. Dimensions are in inches.
2. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.

FIGURE 1. Receptacle - Continued.

REQUIREMENTS:

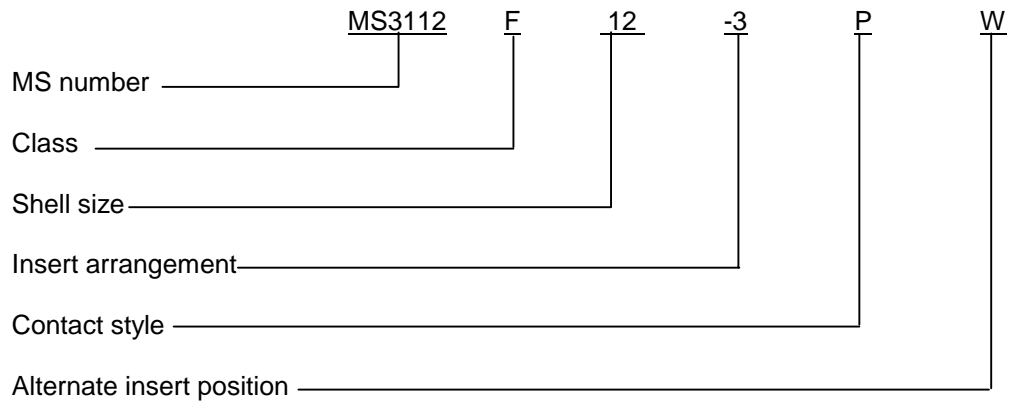
Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3111, MS3116, MS3121 and MS3126.

For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4656-003)

Review activities:

Army - AV
Navy - SH

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-004.

INCH-POUND

MS3115F
DRAFT
SUPERSEDING
MS3115E
15 December 1998

DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, DUMMY STOWAGE, BAYONET COUPLING, FOR MIL-DTL-26482 CONNECTORS, SERIES I AND II

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.

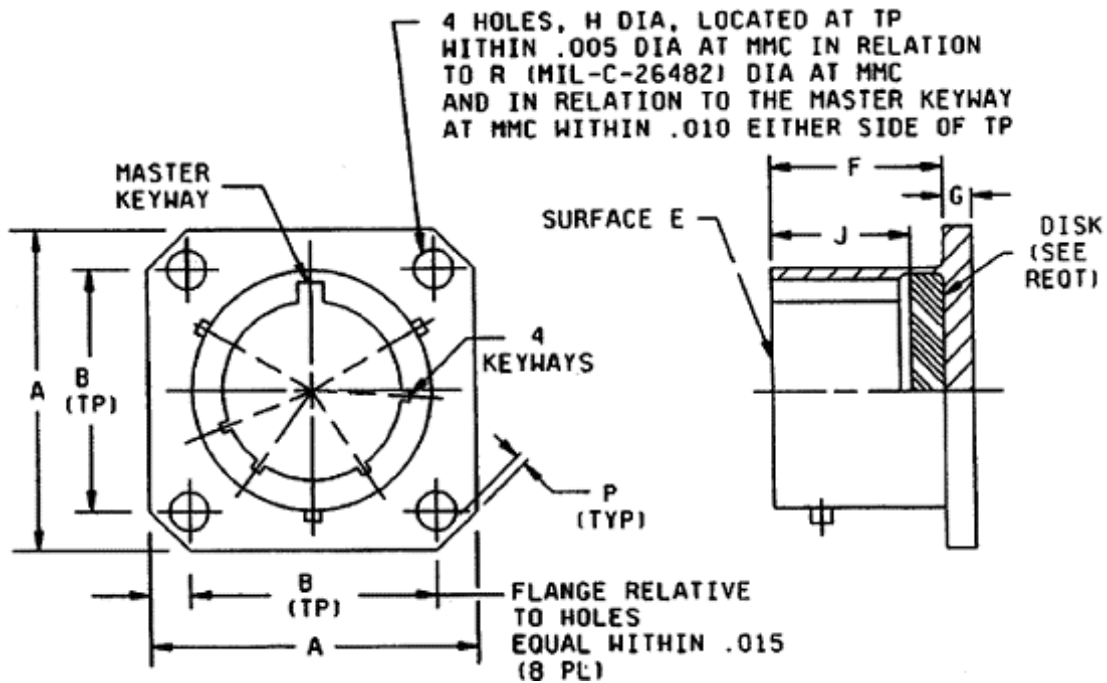


FIGURE 1. Receptacle, dummy stowage, dimensions and configurations.

MS3115F

Shell size	A max length Side	B (TP) ⌀ - ⌀ Mounting Holes	F + .031 - .000 Mounting Flange Location	G ± .016 Thick Mounting Flange	H ± .005 Dia Mounting Holes	J + .010 - .020 Disk Location	P Min Edge Distance
8	.828	.594	.462	.062	.120	.328	.035
10	.954	.719					
12	1.047	.812					
14	1.141	.906					
16	1.234	.969					
18	1.328	1.062					
20	1.453	1.156	.556	.094	.147	.390	.050
22	1.578	1.250					
24	1.703	1.375	.589				

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.005	.13	.094	2.39	.719	18.26	1.156	29.36
.010	.25	.120	3.05	.812	20.62	1.234	31.34
.015	.38	.147	3.73	.828	21.03	1.250	31.75
.016	.41	.328	8.33	.906	23.01	1.328	33.73
.020	.51	.390	9.91	.954	24.23	1.375	34.92
.031	.79	.462	11.73	.969	24.61	1.453	36.91
.035	.89	.556	14.12	1.047	26.59	1.578	40.08
.050	1.27	.589	14.96	1.062	26.97	1.703	43.26
.062	1.57	.594	15.09	1.141	28.98		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
2. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.

FIGURE 1. Receptacle, dummy stowage, dimensions and configurations - Continued.

MS3115F

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Material: Dummy stowage - Aluminum alloy.

Disk material: Synthetic rubber or silicone elastomer.

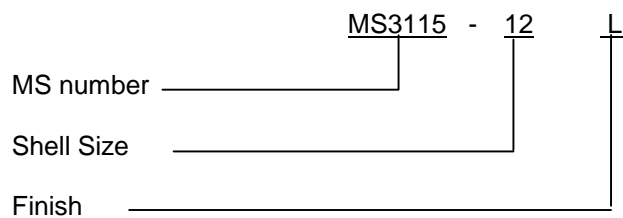
Finish: A, L & W. E finish is superseded by the W finish.

Fluid resistance: This dummy stowage must meet the fluid resistance requirements of MIL-DTL-26482, Series I & II.

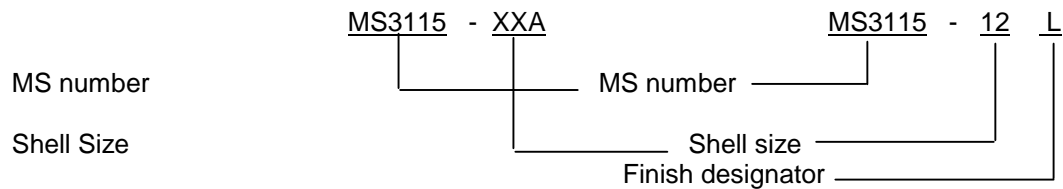
Connector mating: This connector mates with MS3111, MS3116, MS3121 and MS3126.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



Suppression data:



CONCLUDING MATERIAL

Custodians:

Army - CR

Navy - AS

Air Force - 11

DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-004)

Review activities:

Army - AR, AV, MI

Navy - EC, SH

Air Force - 99

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-005.

INCH-POUND

MS3119E
DRAFT
SUPERSEDING
MS3119D
15 December 1998

DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES 1, THRU-BULKHEAD MOUNTING, FLANGE, BAYONET COUPLING

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.

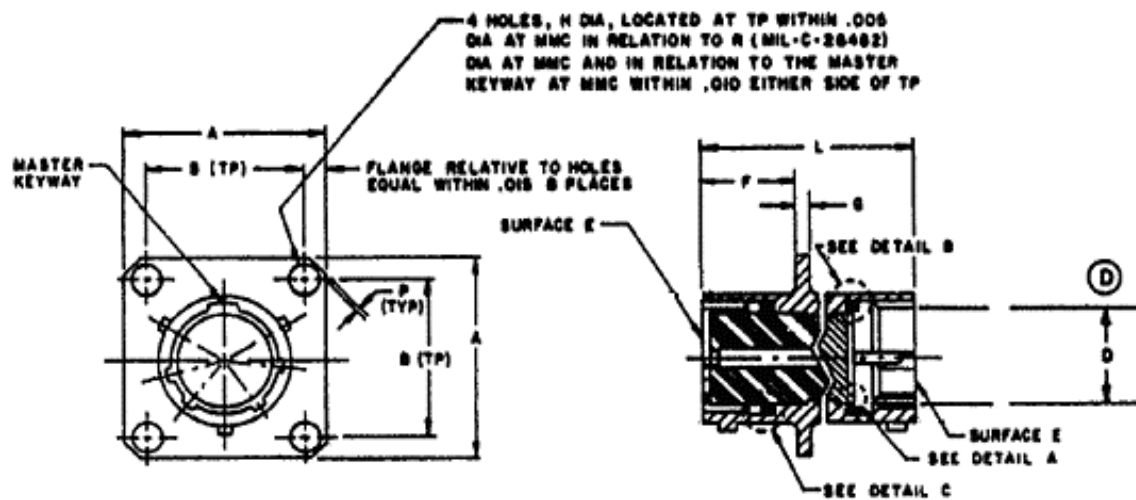


FIGURE 1. Receptacle, class E, dimensions and configurations.

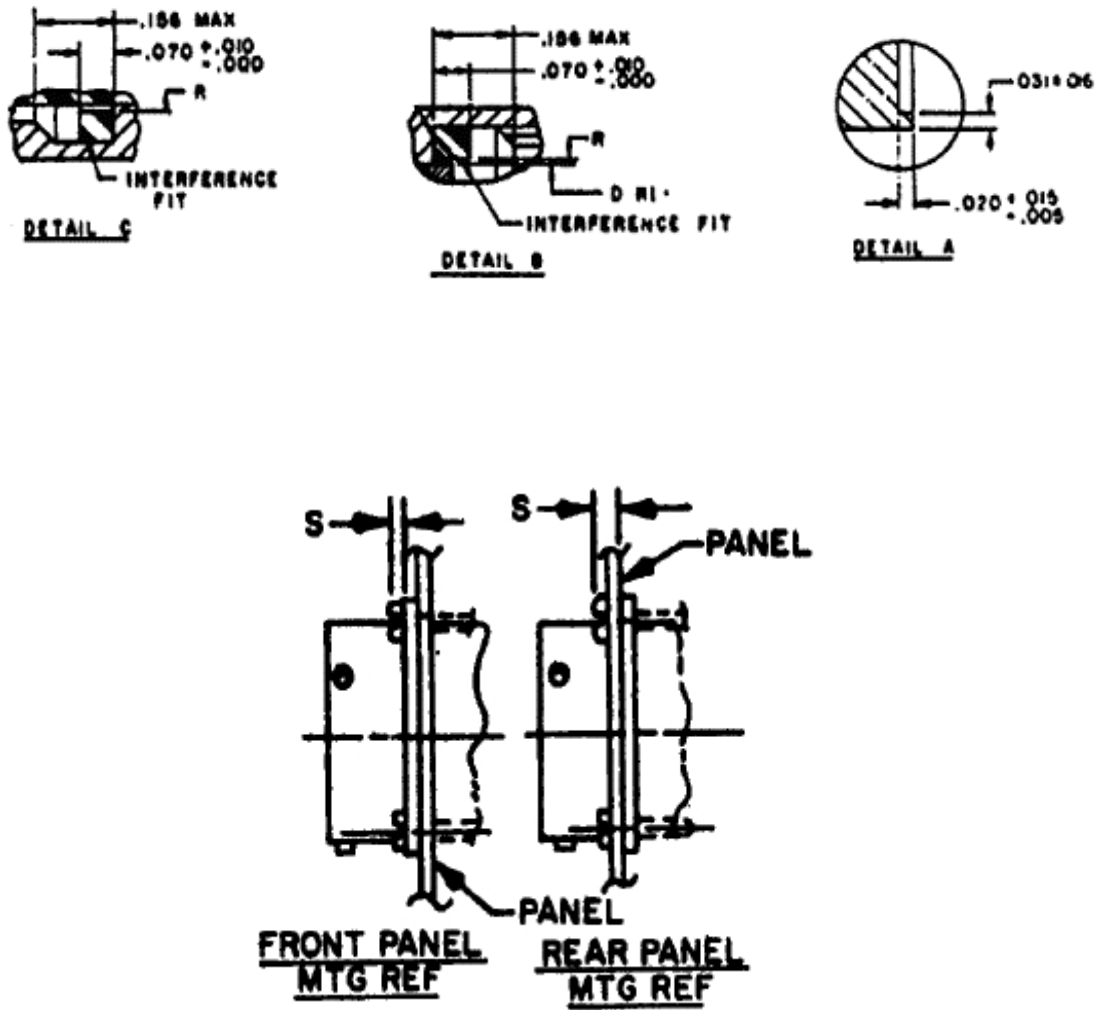


FIGURE 1. Receptacle, class E, dimensions and configurations - Continued.

MS3119E

Shell size	A max length Side	B (TP) Mounting Holes	D Max Insert Dia Pin	F + .031 - .000 Mounting Flange Location	G \pm .016 Thick Mounting Flange	H \pm .005 Dia Mounting Holes
8	.828	.594	.347	.562	.062	.120
10	.954	.719	.464			
12	1.047	.812	.581			
14	1.141	.906	.703			
16	1.234	.969	.828			
18	1.328	1.062	.938			
20	1.453	1.156	1.063	.688	.094	.147
22	1.578	1.250	1.188			
24	1.703	1.375	1.313			

Shell size	L Max Overall Length	P Min Edge Distance	R Max Id Gasket	S Max Panel and Screw head
8	1.125	.035	.378	.218
10			.506	
12			.618	
14			.745	
16			.872	
18			.972	
20	1.406	.050	1.097	.344
22			1.222	
24			1.347	

FIGURE 1. Receptacle, class E, dimensions and configurations - Continued.

MS3119E

Inches	mm	Inches	mm	Inches	mm
.005	.13	.464	11.79	1.062	26.97
.010	.25	.506	12.85	1.063	27.00
.015	.38	.562	14.27	1.097	27.86
.016	.41	.581	14.76	1.141	28.98
.020	.51	.594	15.09	1.156	29.36
.031	.79	.618	15.70	1.188	30.18
.035	.89	.688	17.48	1.222	31.04
.050	1.27	.703	17.86	1.234	31.34
.062	1.57	.719	18.26	1.250	31.75
.070	1.78	.745	18.92	1.313	33.35
.094	2.39	.812	20.62	1.328	33.73
.120	3.05	.828	21.03	1.347	34.21
.147	3.73	.872	22.15	1.375	34.92
.156	3.96	.906	23.01	1.406	35.71
.218	5.54	.938	23.83	1.453	36.91
.311	7.90	.954	24.23	1.578	40.08
.344	8.74	.969	24.61	1.703	43.26
.347	8.81	.972	24.69		
.378	9.60	1.047	26.59		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
2. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.

FIGURE 1. Receptacle, class E, dimensions and configurations - Continued.

MS3119E

REQUIREMENTS:

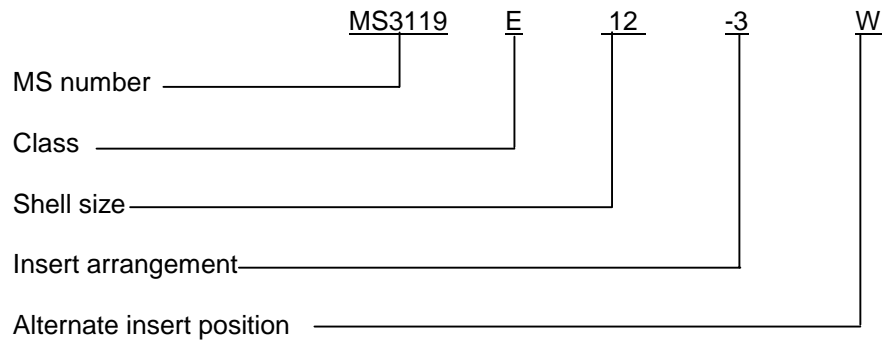
Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3111, MS3116, MS3121 and MS3126.

For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-005)

Review activities:

Army - AV
Navy - EC
Air Force - 99

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-006.

INCH-POUND

MS3122F
DRAFT
SUPERSEDING
MS3122E
15 December 1998

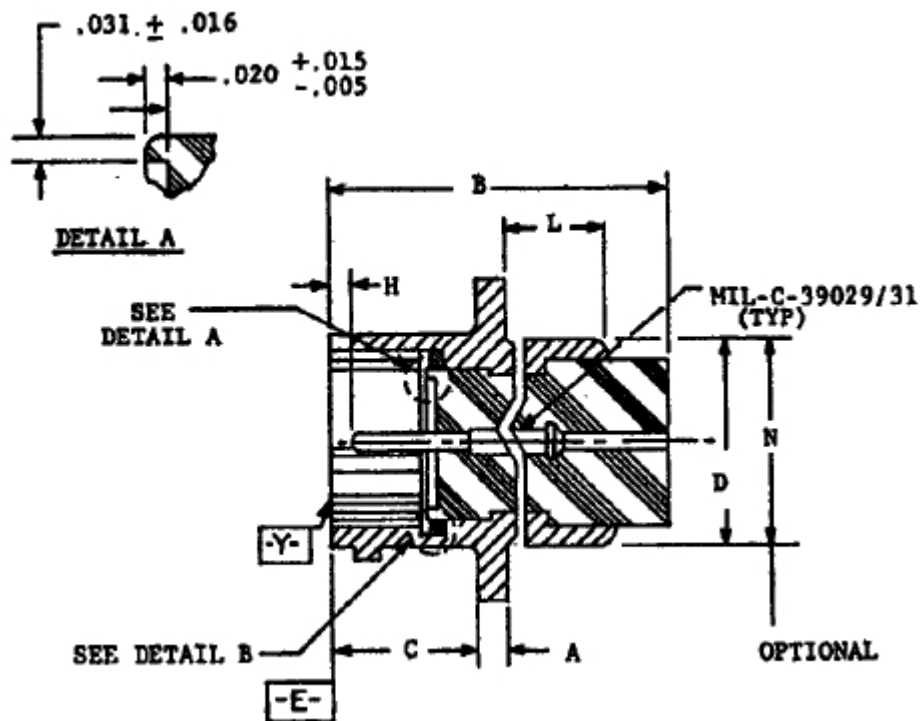
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES 1, CRIMP TYPE, BOX MOUNTING, FLANGE, NO. 4 HOLES, BAYONET COUPLING

This specification is approved for use by all Departments and Agencies of the Department of Defense.

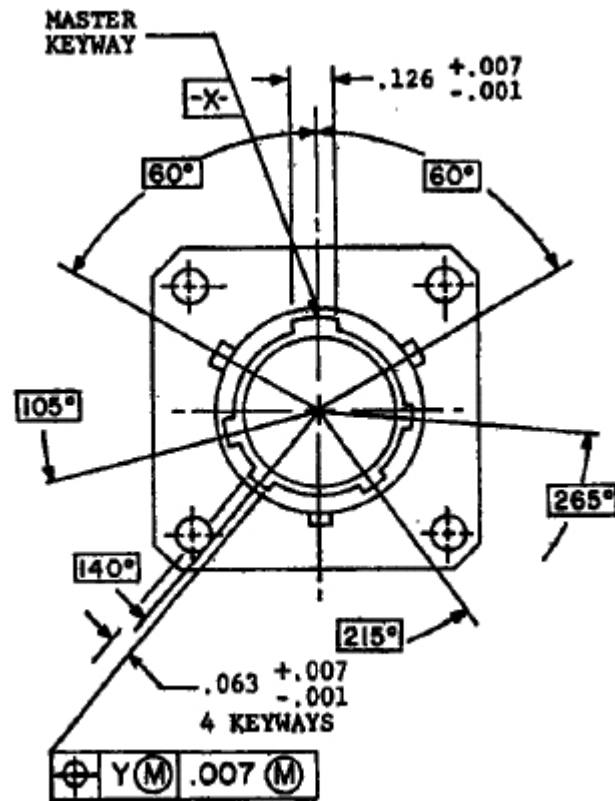
The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



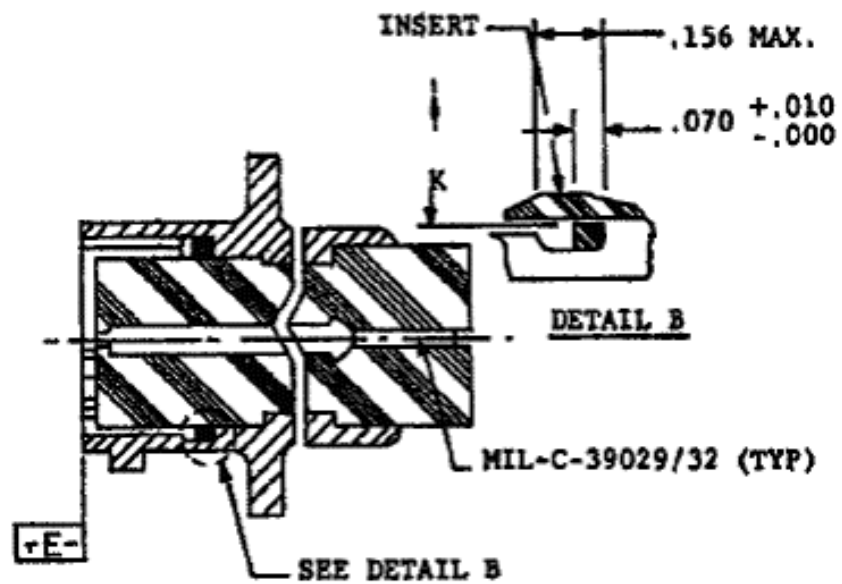
Style P (pin insert)

FIGURE 1. Receptacle, dimensions and configurations.



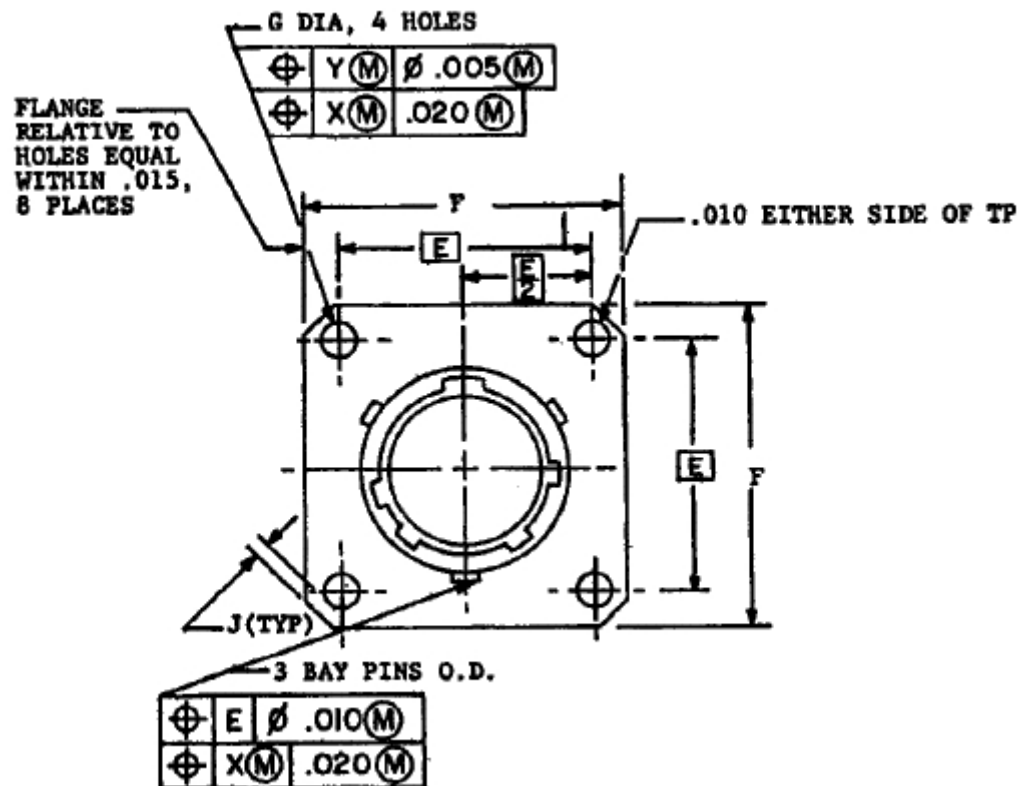
Style P (pin insert)

FIGURE 1. Receptacle, dimensions and configurations - Continued.



Style S (socket insert)

FIGURE 1. Receptacle, dimensions and configurations - Continued.



Style S (socket insert)

FIGURE 1. Receptacle, dimensions and configurations - Continued.

MS3122F

Shell size	A ± .016 Thick Mounting Flange	B Max Overall Length	C + .031 - .000 Mounting Flange Location	D Dia + .031 - .024 OD	E (TP) Mounting Holes	F Max Length Side	G ± .005 Dia Mounting Holes
8	.062	1.320	.431	.438	.594	.828	.120
10				.562	.719	.954	
12				.688	.812	1.047	
14				.812	.906	1.141	
16				.938	.969	1.234	
18				1.062	1.062	1.328	
20	.094	1.367	.556	1.188	1.156	1.453	.147
22				1.312	1.250	1.578	
24		1.418	.589	1.438	1.375	1.703	

Shell size	H + .010 - .020 Pin Contact Location	J Min Edge Distance	K Max ID Gasket	L Max	M Max	N UNEF-2A Thread Optional
8	.085	.035	.329	.406	.087	.4375-28
10			.457			.5625-24
12			.564			.6875-24
14			.689			.8125-20
16			.814			.9375-20
18			.907			1.0625-18
20	.147	.050	1.039	.212		1.1875-18
22			1.164			1.3125-18
24			1.289			1.4375-18

FIGURE 1. Receptacle, dimensions and configurations - Continued.

MS3122F

NOTES:

1. Dimensions are in inches.
2. The rear of the connector shall be suitable for potting in accordance with MIL-DTL-26482.
2. True position (TP) tolerances specified are in accordance with ANSI Y14.5.3.

FIGURE 1. Receptacle, dimensions and configurations - Continued.

REQUIREMENTS:

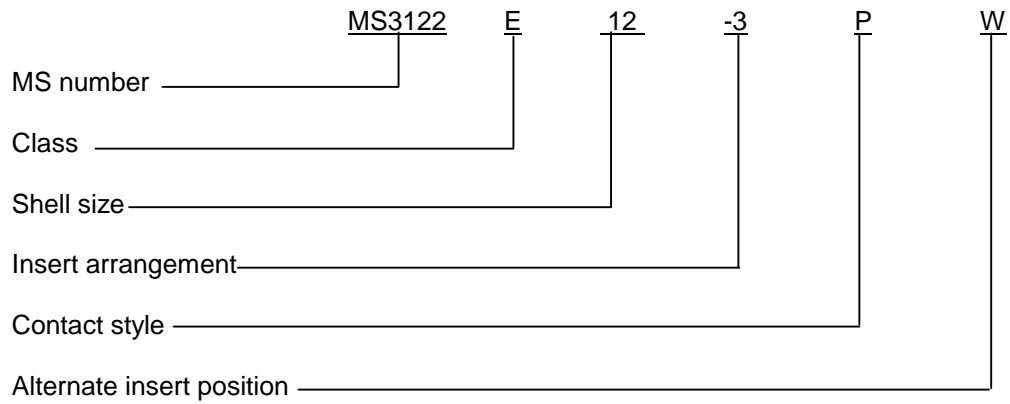
Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3111, MS3116, MS3121 and MS3126.

For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-003)

Review activities:

Army - AV
Navy - SH

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-007.

INCH-POUND

MS3187F
DRAFT
SUPERSEDING
MS3187E
15 December 1998

DETAIL SPECIFICATION SHEET

PLUG, END SEAL, FOR MIL-DTL-26482, MIL-DTL-5015, MIL-C-81703 AND MIL-DTL-83723 ELECTRICAL CONNECTORS

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.

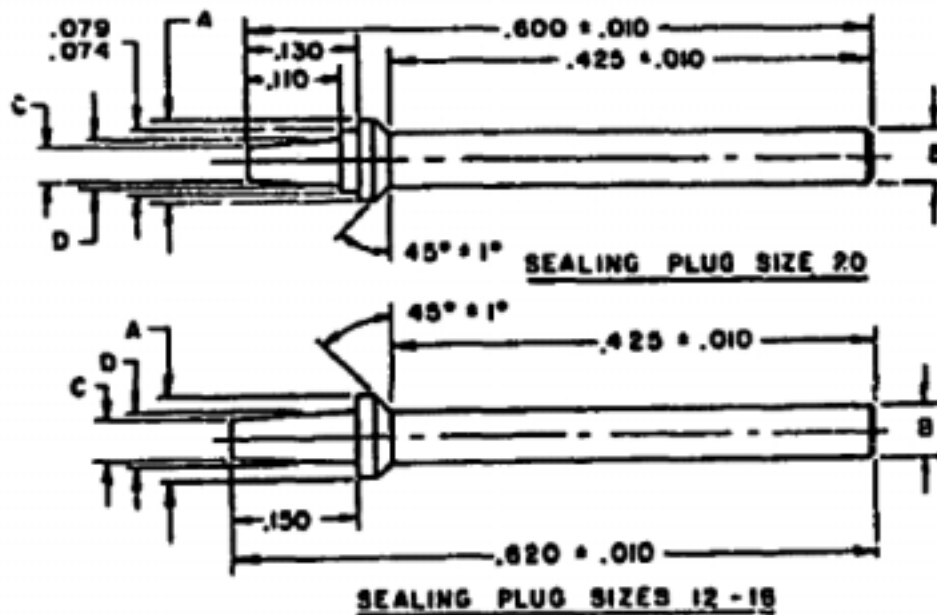


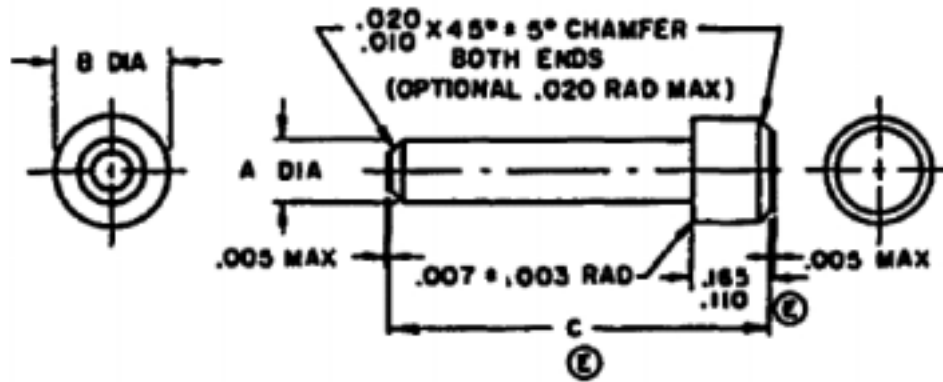
FIGURE 1. Grommet end seal for MIL-DTL-26482 series I, and MIL-C-81703 series II electrical connectors.

MS3187E

Part Number	Size	A	B $\pm .003$	C	D	Color Code
MS3187 A20	A20	.106 .102	.066	.034 .030	.042 .037	Red
MS3187-16	16	.105 .101	.088	.050 .045	.064 .059	Blue
MS3187-12	12	.153 .147	.120	.082 .077	.096 .091	Yellow

FIGURE 1. Grommet end seal for MIL-DTL-26482 series I, and MIL-C-81703 series II electrical connectors - Continued.

MS3187E



Part Number	Install in connector contact cavity size	A dia	B dia	C	Color Code
MS3187-20-2	20	.065 .045	.100 .085	.584 .544	Red
MS3187-16-2	16	.093 .073	.138 .128	.584 .544	Blue
MS3187-12-2	12	.131 .111	.176 .166	.584 .544	Yellow
MS3187-8-2	8	.195 .175	.320 .310	.480 .460	Red
MS3187-4-2	4	.320 .300	.420 .410	.480 .460	Blue
MS3187--0-2	0	.450 .430	.610 .600	1.010 .990	Yellow

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerances are $\pm .005$ inches.
3. Flash not to exceed .010 inches.
4. Break all sharp corners.

FIGURE 2. Grommet end seal for MIL-DTL-26482 series II, and MIL-DTL-5015, MIL-C-81703 series III and MIL-DTL-83723 electrical connectors.

MS3187E

REQUIREMENTS:

Dimensions and configuration: See figures 1 and 2.

Material: Nylon, in accordance with **ASTM-D4066-82** ~~MIL-M-20693~~, type III for MIL-DTL-26482 series I and MIL-C-81703 series II. TFE or equivalent nonconductive material capable of passing all class R performance requirements without damage to connector or plug.
For MIL-DTL-26482 series II, MIL-DTL-5015, MIL-C-81703 series III and MIL-DTL-83723.

Color: Coding colors are specified in accordance with MIL-STD-104.

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-007)

Review activities:

Army - AR, AV, MI
Navy - EC, SH

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-008.

INCH-POUND

MS3440C
DRAFT
SUPERSEDING
MS3440B
15 December 1998

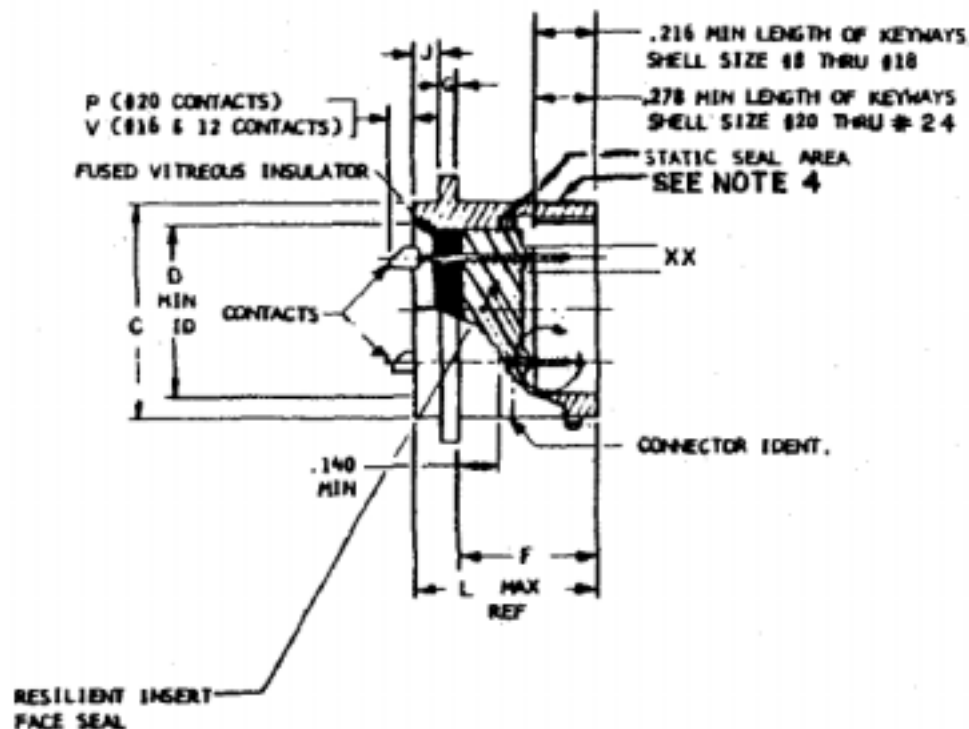
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, NARROW FLANGE MOUNT, BAYONET COUPLING SOLDER PIN CONTACT, CLASS H

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 5 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class H, dimensions and configurations.

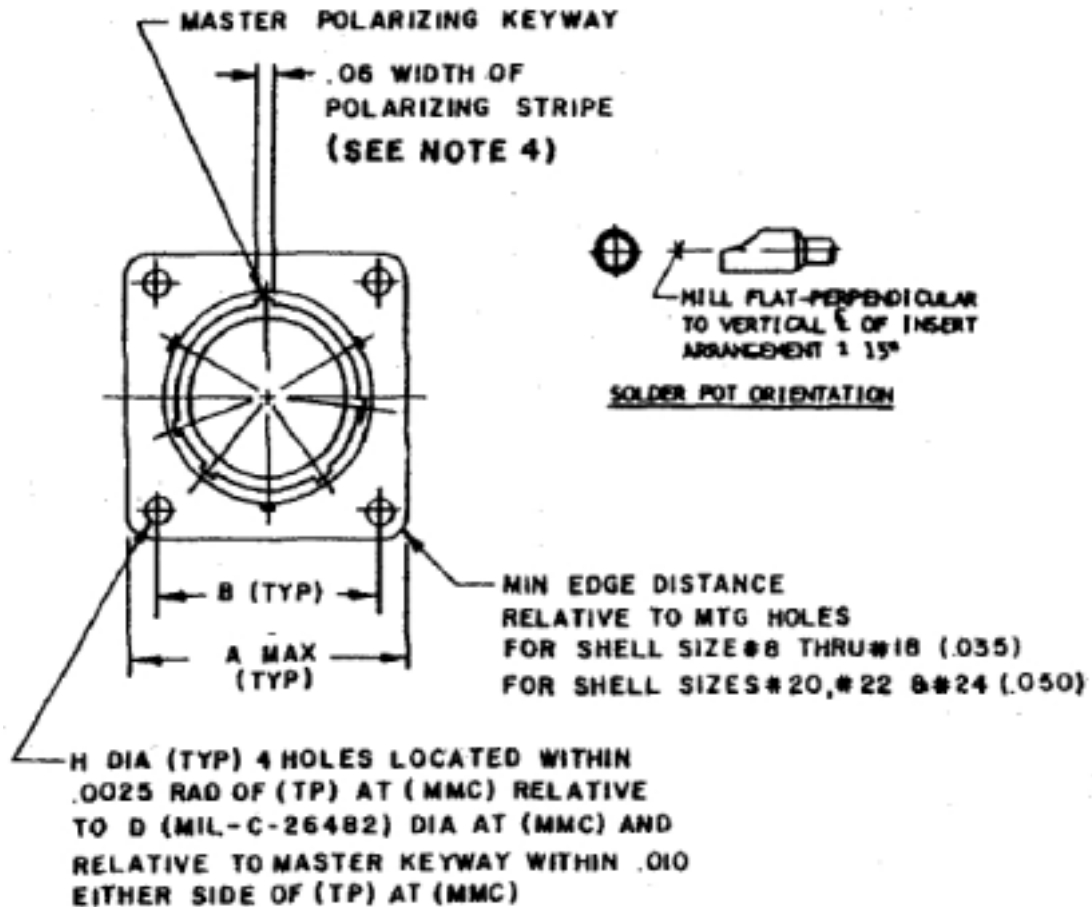


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

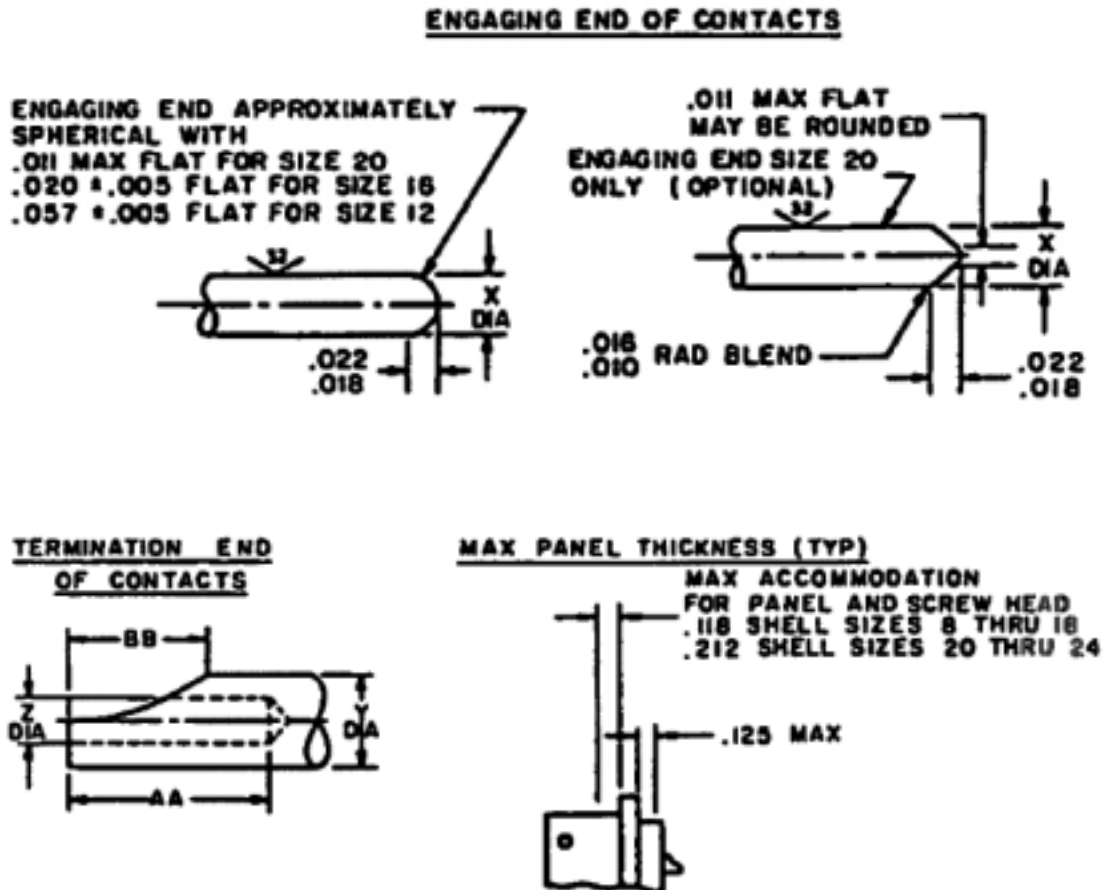


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3440C

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

Shell size	A	B	C	D	F	G
8	.828	.594	.563 .557	.403	.598 .578	.078 .046
10	.954	.719	.673 .667	.515	.598 .578	.078 .046
12	1.047	.812	.782 .776	.630	.598 .578	.078 .046
14	1.141	.906	.907 .901	.755	.598 .578	.078 .046
16	1.234	.969	1.032 1.026	.880	.598 .578	.078 .046
18	1.328	1.062	1.157 1.151	.980	.598 .578	.078 .046
20	1.453	1.156	1.251 1.245	1.105	.660 .640	.110 .078
22	1.578	1.250	1.376 1.370	1.230	.660 .640	.110 .078
24	1.703	1.375	1.501 1.495	1.385	.660 .640	.110 .078

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3440C

Shell size	H	J	L	P	V	Panel Cutout Dia	Max Weight (lbs)
8	.120	.125 .105	.801	.178 .118	.248 .188	.570	.038
10	.120	.125 .105	.801	.178 .118	.248 .188	.680	.044
12	.120	.125 .105	.801	.178 .118	.248 .188	.789	.052
14	.120	.125 .105	.801	.178 .118	.248 .188	.914	.070
16	.120	.125 .105	.801	.178 .118	.248 .188	1.039	.085
18	.120	.125 .105	.801	.178 .118	.248 .188	1.164	.098
20	.120	.093 .073	.863	.178 .118	.248 .188	1.258	.110
22	.120	.125 .105	.895	.146 .086	.216 .156	1.383	.150
24	.147	.125 .105	.895	.146 .086	.216 .156	1.508	.280

Shell size	X	Y	Z	AA	BB
20	.041 .039	.088 .061	.048 .042	.188 .109	.110 .068
16	.0635 .0615	.116 .096	.075 .069	.251 .172	.141 .109
12	.095 .093	.150 .130	.122 .112	.251 .172	.141 .109

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3440C

Inches	mm	Inches	mm	Inches	mm
.0025	.064	.280	7.11	.980	24.89
.010	.25	.403	10.24	1.026	26.06
.016	.41	.515	13.08	1.032	26.21
.018	.46	.557	14.15	1.039	26.39
.022	.56	.563	14.30	1.047	26.59
.038	.97	.578	14.68	1.062	26.97
.044	1.12	.594	15.09	1.105	28.07
.046	1.17	.598	15.19	1.141	28.98
.070	1.78	.630	16.00	1.151	29.24
.073	1.85	.640	16.26	1.156	29.36
.078	1.98	.660	16.76	1.157	29.39
.085	2.16	.667	16.94	1.164	29.57
.086	2.18	.673	17.09	1.230	31.24
.093	2.36	.680	17.27	1.234	31.34
.098	2.49	.719	18.26	1.245	31.62
.105	2.67	.755	19.18	1.250	31.75
.110	2.79	.776	19.71	1.251	31.78
.118	3.00	.782	19.86	1.258	31.95
.120	3.05	.789	20.04	1.328	33.73
.125	3.18	.801	20.35	1.375	34.92
.146	3.71	.828	21.03	1.376	34.95
.147	3.73	.880	22.35	1.383	35.13
.150	3.81	.901	22.89	1.385	35.18
.156	3.96	.906	23.01	1.453	36.91
.178	4.52	.907	23.04	1.495	37.97
.188	4.78	.914	23.22	1.501	38.13
.216	5.49	.954	24.23	1.578	40.08
.248	6.30	.969	24.61	1.703	43.26

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Tolerances are .XX \pm .01, .XXX \pm .005, angular \pm 1° and X°X' \pm 30'.
4. Polarizing stripes, color optional.
5. Insert arrangements requiring reduced diameters for raised seal barrier on outer row of contact cavities as indicated.
6. True position (TP) tolerances specified are in accordance with ANSI Y14.5 - 1973.

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3440C

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

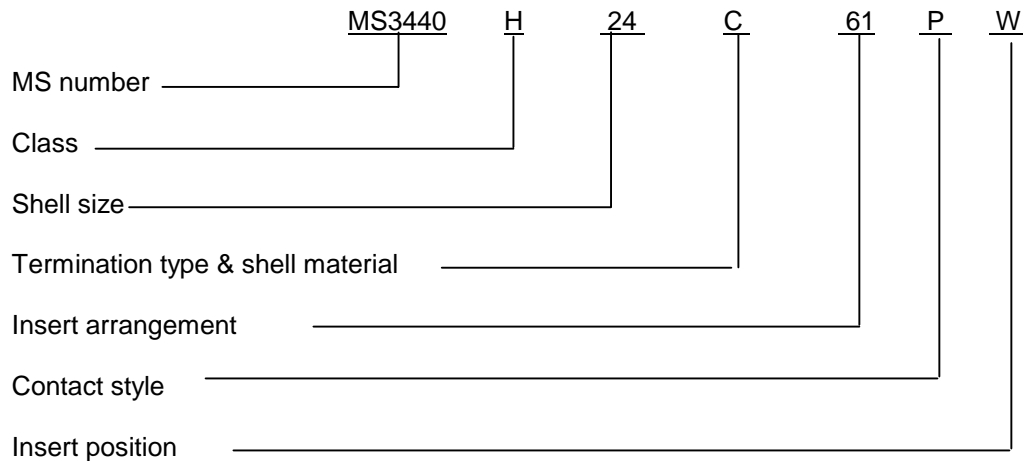
For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Shell material: cold rolled steel in accordance with **ASTM-A108** ~~QQ-S-637~~.

Shell finish: .0001 minimum tin in accordance with **ASTM-B545** or **ASTM-B339** ~~MIL-T-10727~~
over nickel in accordance with **SAE-AMS-QQ-N-290** ~~QQ-N-290~~.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-008)

Review activities:

Army - AV
Navy - EC, SH
Air Force - 99

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-009.

INCH-POUND

MS3442C
DRAFT
SUPERSEDING
MS3442B
15 December 1998

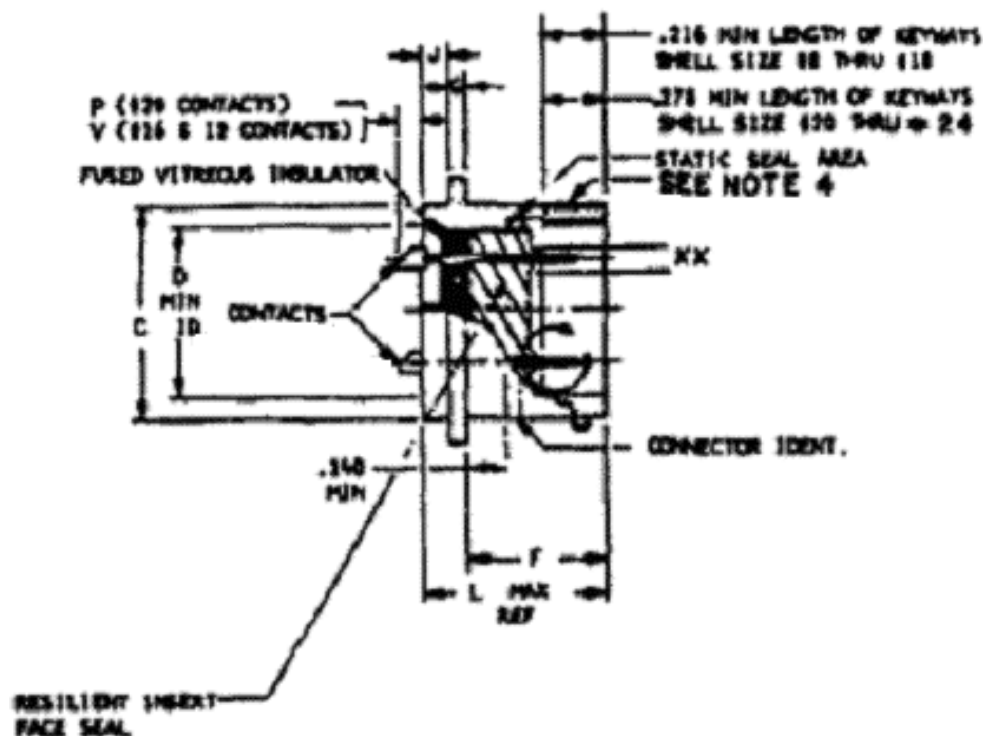
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, WIDE FLANGE MOUNT, BAYONET COUPLING SOLDER PIN CONTACT, CLASS H

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 5 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class H, dimensions and configurations.

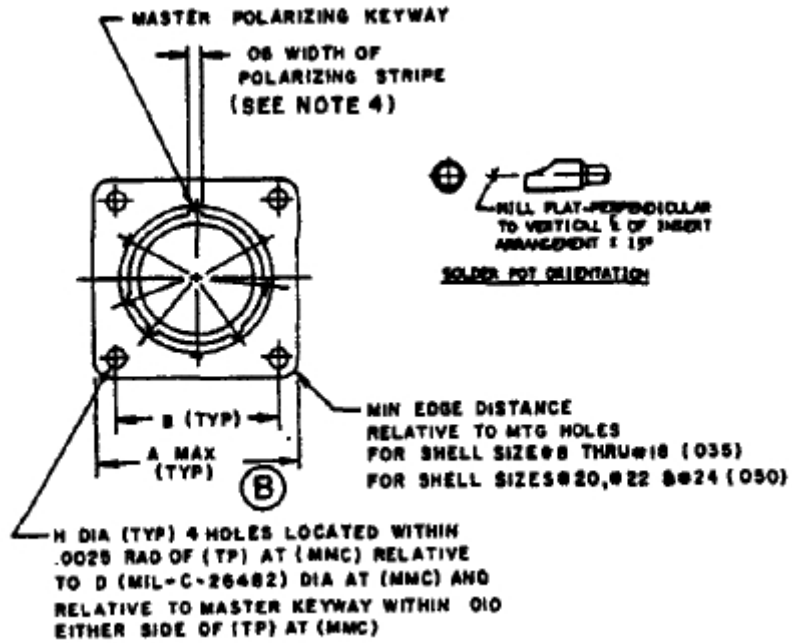
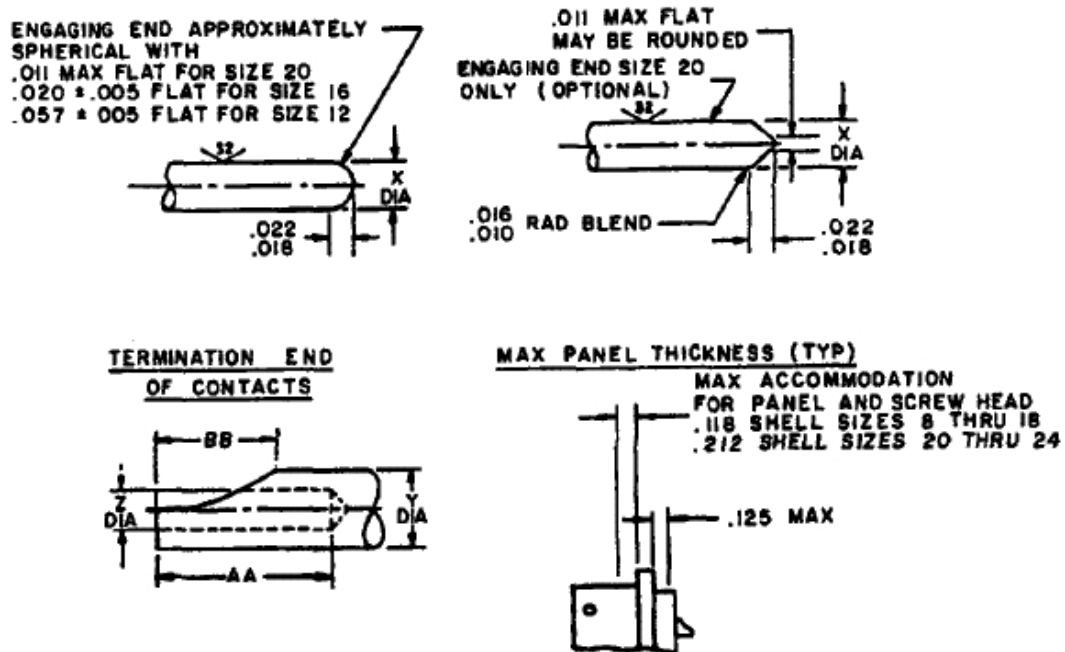


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

Engaging end of contactsFIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3442C

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

Shell size	A	B	C	D	F	G
8	1.065	.734	.563 .557	.403	.598 .578	.078 .046
10	1.141	.812	.673 .667	.515	.598 .578	.078 .046
12	1.266	.938	.782 .776	.630	.598 .578	.078 .046
14	1.360	1.031	.907 .901	.755	.598 .578	.078 .046
16	1.453	1.125	1.032 1.026	.880	.598 .578	.078 .046
18	1.532	1.203	1.157 1.151	.980	.598 .578	.078 .046
20	1.688	1.297	1.251 1.245	1.105	.660 .640	.110 .078
22	1.766	1.375	1.376 1.370	1.230	.660 .640	.110 .078
24	1.891	1.500	1.501 1.495	1.385	.660 .640	.110 .078

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3442C

Shell size	H	J	L	P	V	Panel Cutout Dia	Max Weight (lbs)
8	.150	.125 .105	.801	.178 .118	.248 .188	.570	TBD
10	.150	.125 .105	.801	.178 .118	.248 .188	.680	TBD
12	.150	.125 .105	.801	.178 .118	.248 .188	.789	TBD
14	.150	.125 .105	.801	.178 .118	.248 .188	.914	TBD
16	.150	.125 .105	.801	.178 .118	.248 .188	1.039	TBD
18	.150	.125 .105	.801	.178 .118	.248 .188	1.164	TBD
20	.150	.093 .073	.863	.178 .118	.248 .188	1.258	TBD
22	.150	.125 .105	.895	.146 .086	.216 .156	1.383	TBD
24	.150	.125 .105	.895	.146 .086	.216 .156	1.508	TBD

Shell size	X	Y	Z	AA	BB
20	.041 .039	.088 .061	.048 .042	.188 .109	.110 .068
16	.0635 .0615	.116 .096	.075 .069	.251 .172	.141 .109
12	.095 .093	.150 .130	.122 .112	.251 .172	.141 .109

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3442C

Inches	mm	Inches	mm	Inches	mm
.0025	.064	.150	3.81	.914	23.22
.010	.25	.156	3.96	.938	23.83
.016	.41	.172	4.37	1.026	26.06
.018	.46	.178	4.52	1.031	26.19
.022	.56	.188	4.78	1.032	26.21
.039	.99	.216	5.49	1.039	26.39
.041	1.04	.248	6.30	1.065	27.05
.042	1.07	.251	6.38	1.105	28.07
.046	1.17	.403	10.24	1.125	28.58
.048	1.22	.515	13.08	1.141	28.98
.061	1.55	.557	14.15	1.151	29.24
.0615	1.562	.563	14.30	1.157	29.39
.0635	1.613	.570	14.48	1.164	29.57
.068	1.73	.578	14.68	1.203	30.56
.069	1.75	.580	14.73	1.230	31.24
.073	1.85	.598	15.19	1.245	31.62
.075	1.90	.630	16.00	1.251	31.78
.078	1.98	.640	16.26	1.258	31.95
.086	2.18	.660	16.76	1.266	32.16
.088	2.24	.667	16.94	1.297	32.94
.093	2.36	.673	17.09	1.360	34.54
.095	2.41	.680	17.27	1.375	34.92
.096	2.44	.734	18.64	1.376	34.95
.105	2.67	.755	19.18	1.383	35.13
.109	2.77	.776	19.71	1.385	35.18
.110	2.79	.782	19.86	1.453	36.91
.112	2.84	.789	20.04	1.495	37.97
.116	2.95	.801	20.35	1.500	38.10
.118	3.00	.812	20.62	1.501	38.13
.125	3.18	.863	21.92	1.508	38.30
.130	3.30	.880	22.35	1.532	38.91
.141	3.58	.901	22.89	1.766	44.86
.146	3.71	.907	23.04	1.891	48.03

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Tolerances are .XX ± .01, .XXX ± .005, angular ± 1° and X°X' ± 30'.
4. Polarizing stripes, color optional.
5. Insert arrangements requiring reduced diameters for raised seal barrier on outer raw of contact cavities as indicated.
6. True position (TP) tolerances specified are in accordance with ANSI Y14.5 - 1973.

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3442C

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

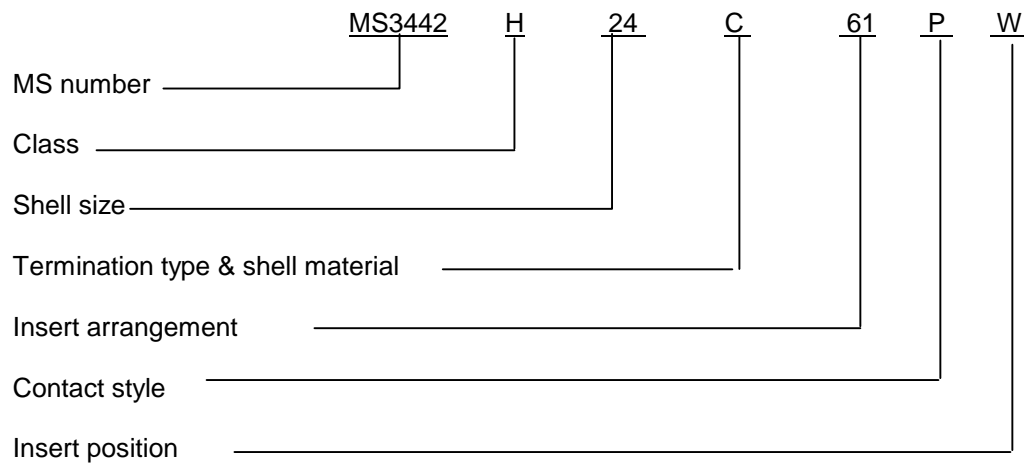
For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Shell material: cold rolled steel in accordance with **ASTM-A108** ~~QQ-S-637~~.

Shell finish: .0001 minimum tin in accordance with **ASTM-B545** or **ASTM-B339** ~~MIL-T-10727~~
over nickel in accordance with **SAE-AMS-QQ-N-290** ~~QQ-N-290~~.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4656-009)

Review activities:

Army - AV
Navy - EC, SH
Air Force - 99

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-010.

INCH-POUND

MS3443B
DRAFT
SUPERSEDING
MS3443A
15 December 1998

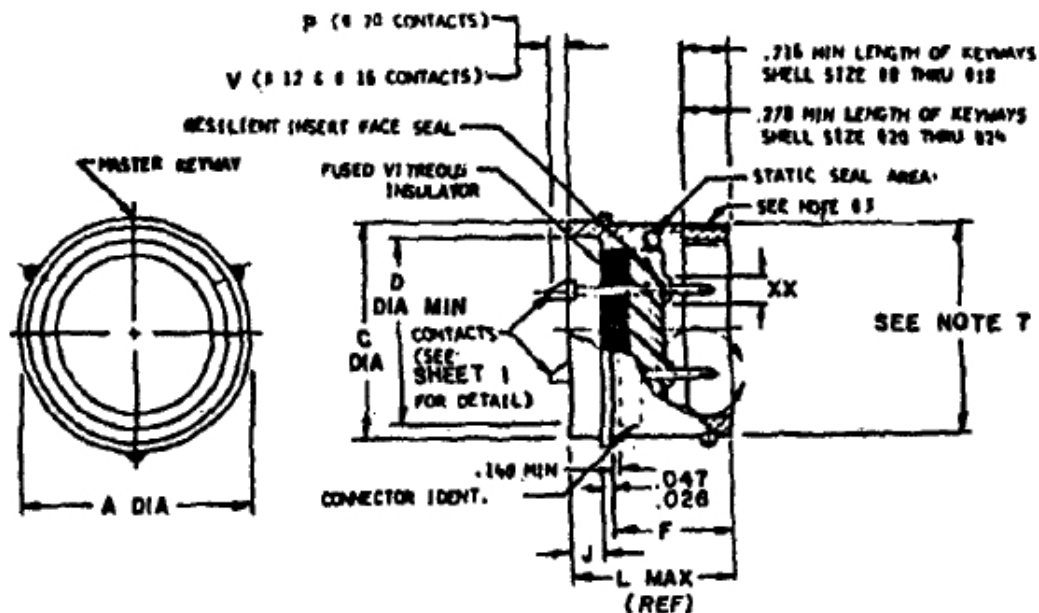
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, SOLDER FLANGE MOUNT, BAYONET COUPLING SOLDER PIN CONTACT, CLASS H

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 4 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class H, dimensions and configurations.

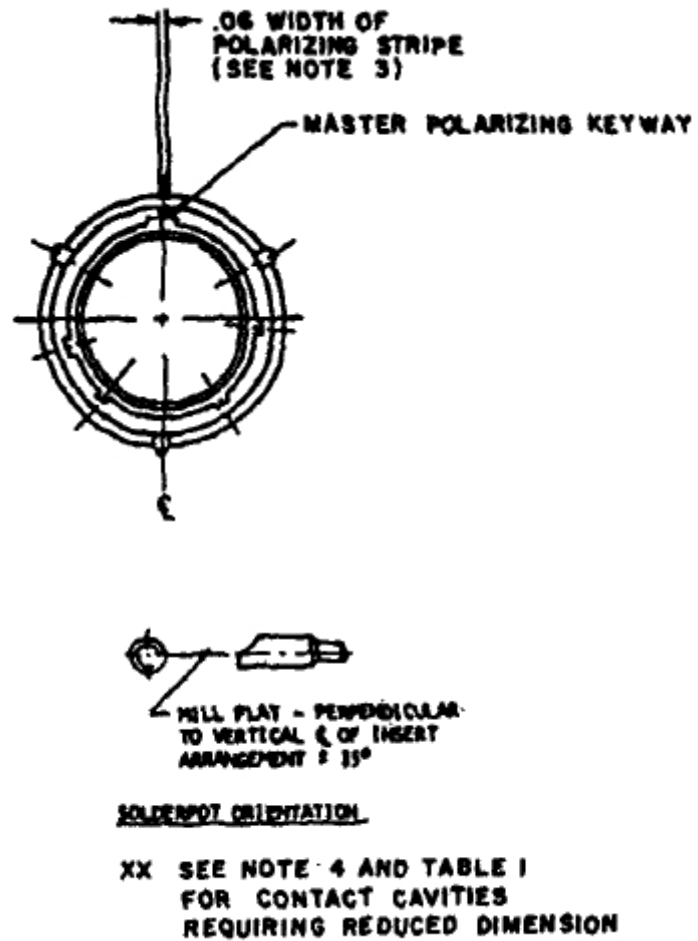


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

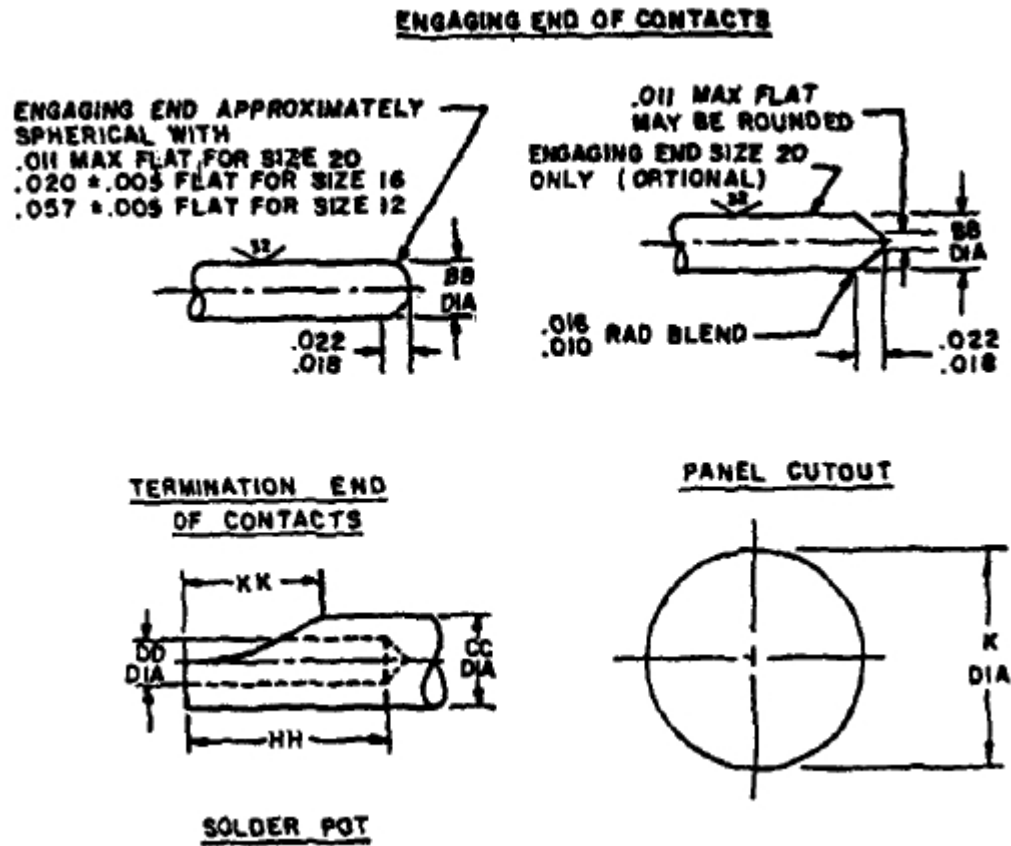


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3443B

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

Shell size	A	C	D	F
8	.635 .615	.563 .557	.403	.598 .578
10	.760 .740	.673 .667	.515	.598 .578
12	.854 .834	.782 .776	.630	.598 .578
14	.979 .959	.907 .901	.755	.598 .578
16	1.104 1.084	1.032 1.026	.880	.598 .578
18	1.228 1.208	1.157 1.151	.980	.598 .578
20	1.322 1.302	1.251 1.245	1.105	.660 .640
22	1.448 1.428	1.376 1.370	1.230	.660 .640
24	1.574 1.554	1.501 1.495	1.385	.660 .640

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3443B

Shell size	J	K	L	P	V	Max Weight (lbs)
8	.156 .116	.570	.801	.178 .118	.248 .188	.0310
10	.156 .116	.680	.801	.178 .118	.248 .188	.0340
12	.156 .116	.789	.801	.178 .118	.248 .188	.0400
14	.156 .116	.914	.801	.178 .118	.248 .188	.0510
16	.156 .116	1.039	.801	.178 .118	.248 .188	.0620
18	.156 .116	1.164	.801	.178 .118	.248 .188	.0820
20	.156 .116	1.258	.863	.178 .118	.248 .188	.1000
22	.188 .148	1.383	.895	.146 .086	.216 .156	.1150
24	.188 .148	1.508	.895	.146 .086	.216 .156	.2680

Shell size	BB	CC	DD	HH	KK
20	.041 .039	.088 .061	.048 .042	.188 .109	.110 .068
16	.0635 .0615	.116 .096	.075 .069	.251 .172	.141 .109
12	.095 .093	.150 .130	.122 .112	.251 .172	.141 .109

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3443B

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
2. Tolerances are .XX ± .01, .XXX ± .005, angular ± 1° and X°X' ± 30'.
3. Polarizing stripes, color optional.
4. Insert arrangements requiring reduced diameters for raised seal barrier on outer raw of contact cavities as indicated.
5. True position (TP) tolerances specified are in accordance with ANSI Y14.5 - 1973.

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

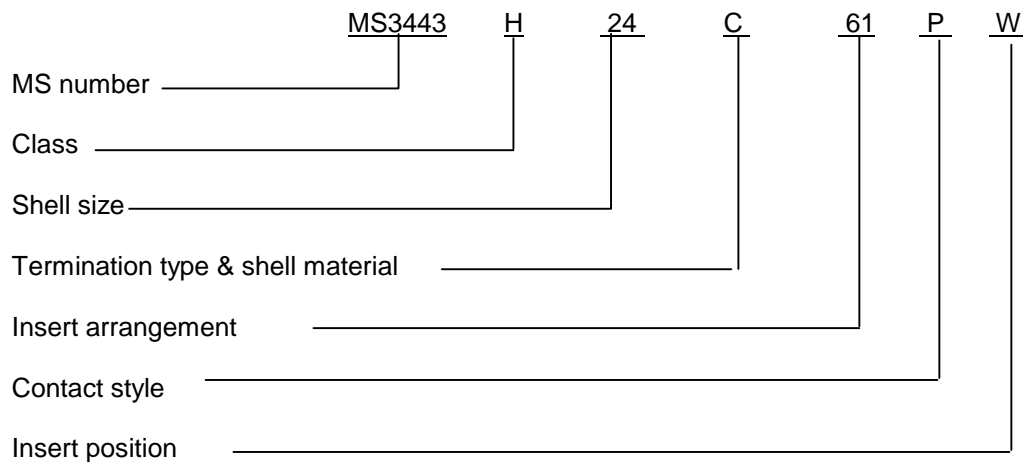
For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Shell material: cold rolled steel in accordance with **ASTM-A108 QQ-S-637**.

Shell finish: .0001 minimum tin in accordance with **ASTM-B545 or ASTM-B339 MIL-T-10727** over nickel in accordance with **SAE-AMS-QQ-N-290 QQ-N-290**.

Part or Identifying Number (PIN) example:



MS3443B

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-010)

Review activities:

Army - AV
Navy - EC, SH

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-011.

INCH-POUND

MS3449D
DRAFT
SUPERSEDING
MS3449C
15 December 1998

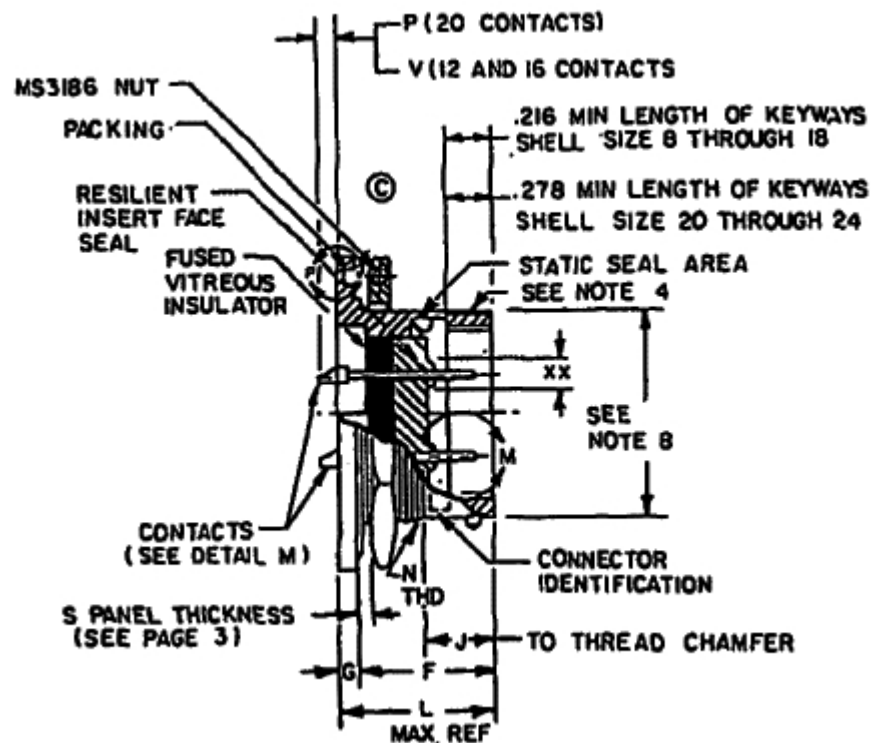
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, SINGLE HOLE MOUNT, BAYONET COUPLING, SOLDER PIN CONTACT, CLASS H

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 5 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class H, dimensions and configurations.

MS3449C

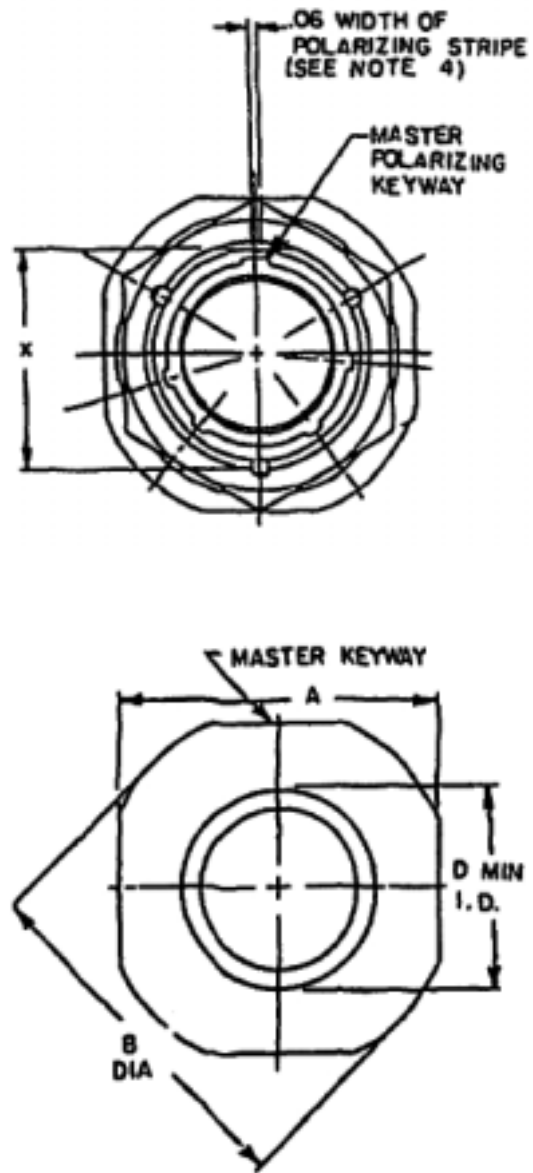
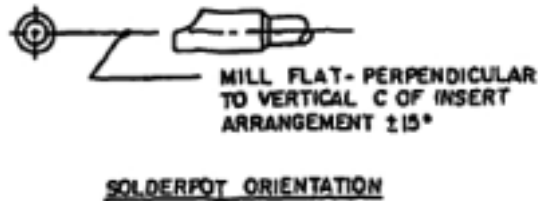
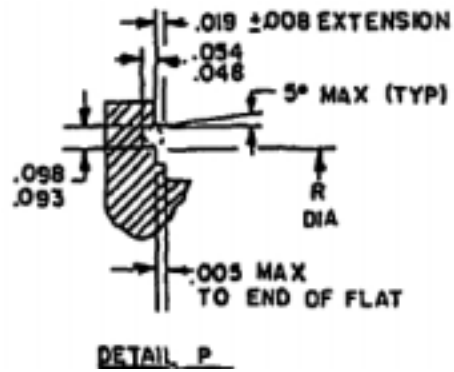


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3449C

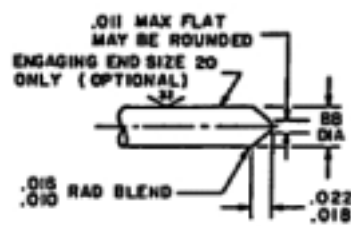
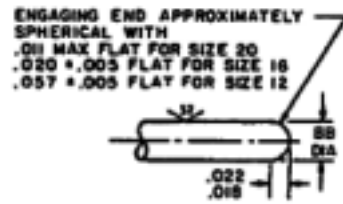


XX SEE NOTE 5 AND TABLE 'I
FOR CONTACT CAVITIES
REQUIRING REDUCED DIMENSION

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

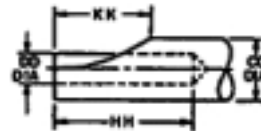
MS3449C

Engaging end of contacts



Detail M

TERMINATION END
OF CONTACTS



SOLDER POT

PANEL CUTOUT

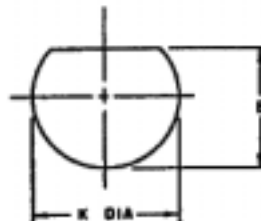


FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3449C

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

Shell size	BB	CC	DD	HH	KK
20	.041 .039	.088 .061	.048 .042	.188 .109	.110 .068
16	.0635 .0615	.116 .096	.075 .069	.251 .172	.141 .109
12	.095 .093	.150 .130	.122 .112	.251 .172	.141 .109

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3449C

Shell size	A	B	D	E	F
8	.954 .923	1.078 1.047	.403	.536	.707 .691
10	1.078 1.047	1.203 1.172	.515	.661	.707 .691
12	1.266 1.235	1.391 1.360	.630	.824	.707 .691
14	1.391 1.360	1.516 1.485	.755	.948	.707 .691
16	1.516 1.485	1.641 1.610	.880	1.072	.707 .691
18	1.641 1.610	1.766 1.735	.980	1.197	.707 .691
20	1.828 1.797	1.954 1.923	1.105	1.322	.772 .754
22	1.954 1.923	2.078 2.047	1.230	1.447	.772 .754
24	2.078 2.047	2.203 2.172	1.385	1.572	.803 .705

Shell size	G	J	K	L	N UNEF-2A	P
8	.113 .097	.378 .358	.572	.820	.5625-24	.134 .074
10	.113 .097	.378 .358	.697	.820	.6875-24	.134 .074
12	.113 .097	.378 .358	.895	.820	.875-20	.134 .074
14	.113 .097	.378 .358	1.010	.820	1.000-20	.134 .074
16	.113 .097	.378 .358	1.135	.820	1.125-18	.134 .074
18	.113 .097	.378 .358	1.260	.820	1.250-18	.134 .074
20	.148 .128	.378 .358	1.385	.920	1.375-18	.099 .039
22	.148 .128	.378 .358	1.510	.920	1.500-18	.099 .039
24	.148 .128	.405 .385	1.635	.951	1.625-18	.069 .009

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3449C

Shell size	R	S	V	X	Max Weight (lbs)
8	.609	.187 .062	.204 .144	.525	.0430
10	.734	.187 .062	.204 .144	.650	.0610
12	.921	.187 .062	.204 .144	.813	.0880
14	1.046	.187 .062	.204 .144	.937	.1100
16	1.171	.187 .062	.204 .144	1.061	.1310
18	1.296	.187 .062	.204 .144	1.186	.1720
20	1.484	.250 .062	.169 .109	1.311	.2110
22	1.609	.250 .062	.169 .109	1.436	.2420
24	1.734	.250 .062	.139 .079	1.561	.2930

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Tolerances are .XX \pm .01, .XXX \pm .005, angular \pm 1° and X°X' \pm 30'.
4. Polarizing stripes, color optional.
5. Insert arrangements requiring reduced diameters for raised seal barrier on outer row of contact cavities as indicated.
6. True position (TP) tolerances specified are in accordance with ANSI Y14.5 - 1973.

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3449C

Inches	mm	Inches	mm	Inches	mm
.005	.13	.250	6.35	1.186	30.12
.008	.20	.251	6.38	1.197	30.40
.016	.41	.2930	7.442	1.203	30.56
.018	.46	.358	9.09	1.205	30.61
.019	.48	.378	9.60	1.230	31.24
.022	.56	.403	10.24	1.235	31.37
.039	.99	.515	13.08	1.250	31.75
.041	1.04	.525	13.34	1.259	32.00
.042	1.07	.536	13.61	1.266	32.16
.0430	1.092	.5625	14.288	1.296	32.92
.048	1.22	.572	14.53	1.311	33.30
.054	1.37	.609	15.47	1.322	33.58
.061	1.55	.650	16.51	1.375	34.92
.0615	1.562	.6875	17.46	1.385	35.18
.062	1.57	.691	17.55	1.391	35.33
.0635	1.613	.697	17.70	1.436	36.47
.068	1.73	.707	17.96	1.447	36.75
.088	2.24	.734	18.64	1.455	36.96
.093	2.36	.754	19.15	1.484	37.69
.095	2.41	.767	19.48	1.500	38.10
.109	2.77	.772	19.61	1.510	38.35
.110	2.79	.803	20.40	1.516	38.51
.112	2.84	.820	20.83	1.560	39.62
.113	2.87	.875	22.22	1.561	39.65
.116	2.95	.880	22.35	1.572	39.93
.122	3.10	.892	22.66	1.579	40.11
.128	3.25	.895	22.73	1.609	40.87
.130	3.30	.920	23.37	1.625	41.28
.131	3.33	.921	23.39	1.635	41.53
.141	3.58	.923	23.44	1.641	41.68
.144	3.66	.937	23.80	1.705	43.31
.148	3.76	.954	24.23	1.734	44.04
.150	3.81	1.010	25.65	1.766	44.86
.169	4.29	1.061	26.95	1.828	46.43
.172	4.37	1.078	27.38	1.829	46.46
.187	4.75	1.105	28.07	1.954	49.63
.204	5.18	1.125	28.58	2.078	52.78
.2110	5.359	1.135	28.83	2.203	55.96
.2420	6.147	1.171	29.74		

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3449C

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

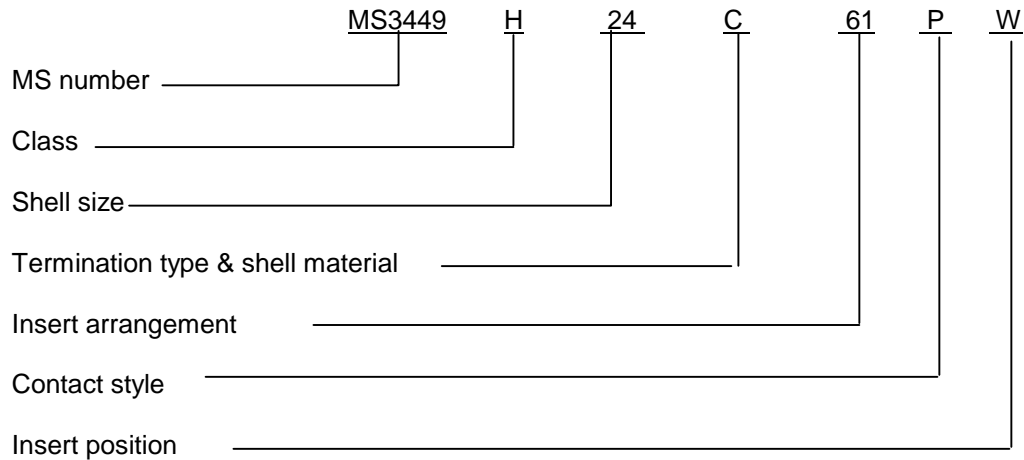
For insert arrangement: See MIL-STD-1669.

Intermateability dimensions are in accordance with MIL-DTL-26482.

Shell material: cold rolled steel in accordance with **ASTM-A108** ~~QQ-S-637~~.

Shell finish: .0001 minimum tin in accordance with **ASTM-B545** or **ASTM-B339** ~~MIL-T-10727~~
over nickel in accordance with **SAE-AMS-QQ-N-290** ~~QQ-N-290~~.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-011)

Review activities:

Army - AR, AV, MI
Navy - EC, SH
Air Force - 99

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-012.

INCH-POUND

MS3470E
DRAFT
SUPERSEDING
MS3470D
15 December 1998

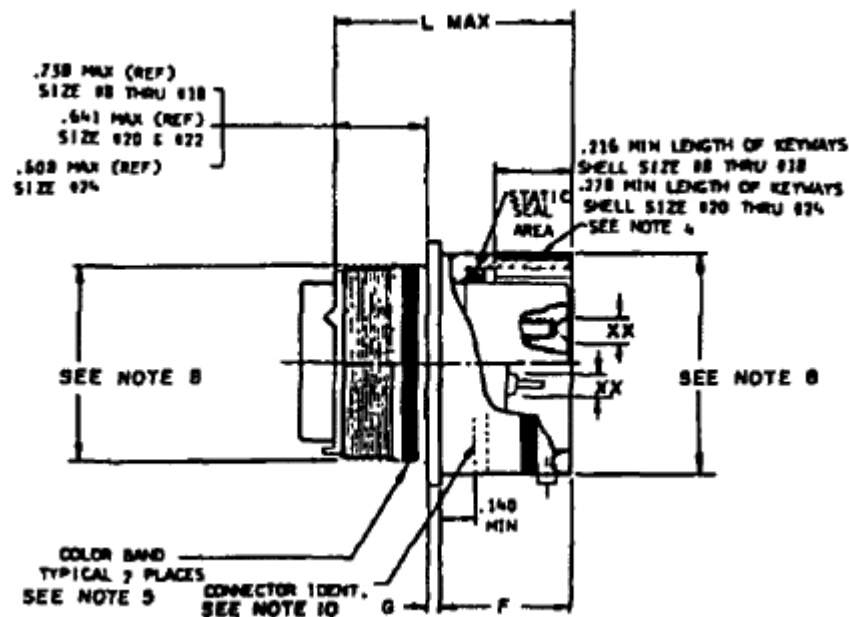
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, CRIMP TYPE, NARROW FLANGE MOUNT, BAYONET COUPLING CLASSES A, L, S and W

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 6 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations.

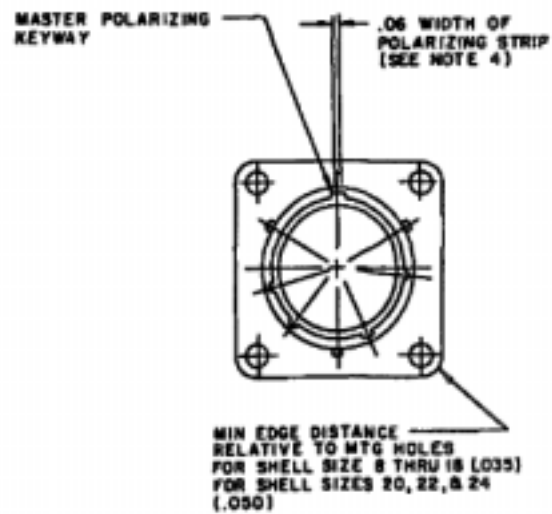
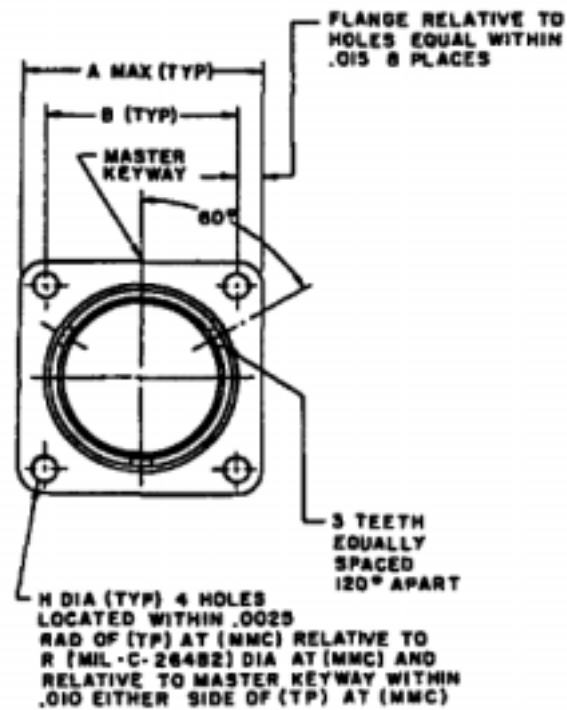
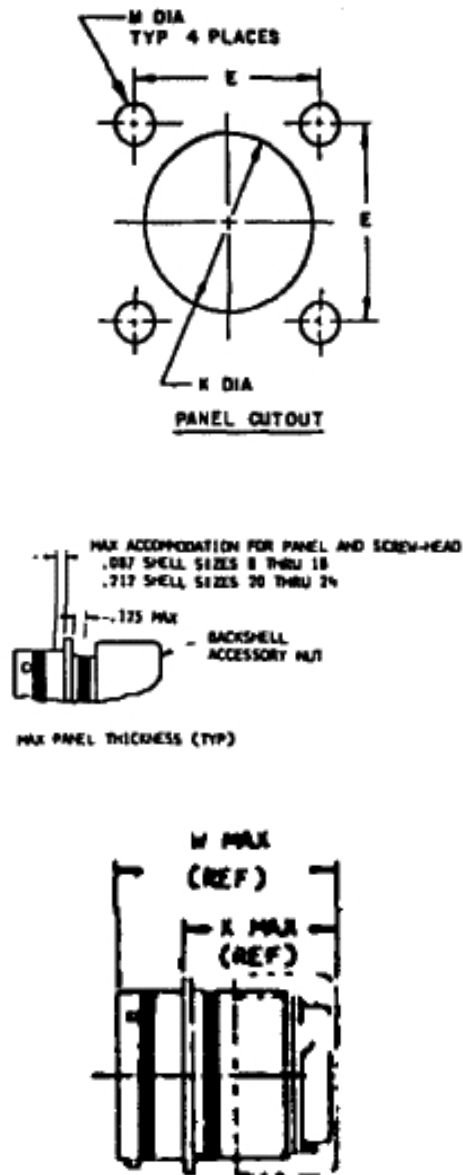


FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

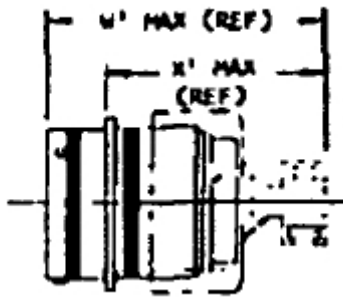
MS3470E



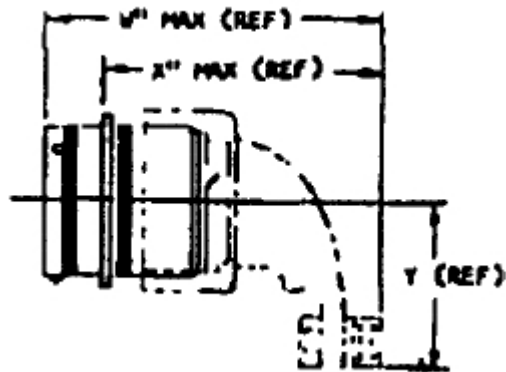
Assembled to straight backshell less strain relief (see note 7).

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

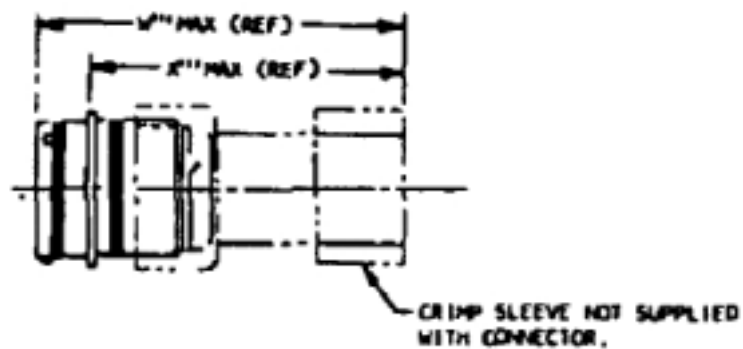
MS3470E



Assembled to straight backshell with strain relief (see note 7).



Assembled to 90° backshell with strain relief (see note 7).



Assembled to RFI backshell (see note 7).

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3470E

Shell size	A	B	E	F	G	H	K
8	.828	.594	.589/.599	.462/.431	.078/.046	.120	.563/.573
10	.954	.719	.714/.724	.462/.431	.078/.046	.120	.680/.690
12	1.047	.812	.807/.817	.462/.431	.078/.046	.120	.859/.869
14	1.141	.906	.901/.911	.462/.431	.078/.046	.120	.984/.994
16	1.234	.969	.964/.974	.462/.431	.078/.046	.120	1.108/1.118
18	1.328	1.062	1.057/1.067	.462/.431	.078/.046	.120	1.233/1.243
20	1.453	1.156	1.151/1.161	.587/.556	.110/.078	.120	1.358/1.368
22	1.578	1.250	1.245/1.255	.587/.556	.110/.078	.120	1.483/1.493
24	1.703	1.375	1.370/1.380	.620/.589	.110/.078	.147	1.610/1.620

Shell size	L	M	W	W'	W''	W' "	X
8	1.215	.110/.130	1.492	1.842	2.115	2.339	1.061
10	1.215	.110/.130	1.492	1.842	2.115	2.339	1.061
12	1.215	.110/.130	1.492	1.842	2.250	2.339	1.061
14	1.215	.110/.130	1.492	2.077	2.340	2.339	1.061
16	1.215	.110/.130	1.492	2.077	2.475	2.339	1.061
18	1.215	.110/.130	1.492	2.077	2.574	2.339	1.061
20	1.275	.110/.130	1.552	2.137	2.767	2.399	.996
22	1.275	.110/.130	1.552	2.137	2.890	2.399	.996
24	1.275	.137/.157	1.552	2.137	3.012	2.399	.963

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3470E

Shell size	X'	X''	X' "	Y	Pin Max weight (lbs)	Pin Max weight (lbs)
8	1.411	1.684	1.920	.830	.0159	.0167
10	1.411	1.684	1.920	.880	.0227	.0239
12	1.411	1.819	1.920	.950	.0311	.0369
14	1.646	1.909	1.920	1.010	.0392	.0483
16	1.646	2.044	1.920	1.070	.0503	.0609
18	1.646	2.143	1.920	1.130	.0542	.0699
20	1.581	2.211	1.855	1.190	.0698	.0898
22	1.581	2.334	1.855	1.260	.0797	.1090
24	1.548	2.423	1.822	1.320	.1048	.1241

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3470E

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.046	1.164	.690	17.526	1.010	25.654	1.453	36.906
.060	1.524	.714	18.136	1.061	26.950	1.483	37.670
.078	1.981	.719	18.263	1.070	27.178	1.492	37.897
.087	2.210	.724	18.390	1.108	28.143	1.493	37.922
.110	2.794	.738	18.745	1.118	28.400	1.548	39.319
.120	3.048	.807	20.498	1.130	28.702	1.552	37.420
.125	3.175	.812	20.625	1.141	28.981	1.578	40.081
.130	3.302	.817	20.752	1.151	29.236	1.581	40.157
.137	3.480	.828	21.031	1.156	29.362	1.610	40.894
.140	3.556	.830	21.082	1.161	29.490	1.620	41.150
.147	3.734	.859	21.819	1.190	30.226	1.646	41.808
.157	3.988	.869	22.073	1.215	30.861	1.684	42.774
.212	5.385	.880	22.352	1.234	31.344	1.703	43.256
.216	5.487	.901	22.885	1.245	31.623	1.819	46.203
.278	7.061	.906	23.012	1.233	31.320	1.822	46.280
.431	10.948	.911	23.140	1.243	31.572	1.855	47.120
.462	11.735	.950	24.130	1.250	31.750	1.920	48.768
.556	14.122	.954	24.232	1.255	31.877	2.339	59.410
.563	14.300	.963	24.460	1.260	32.004	2.340	59.436
.573	14.554	.964	24.486	1.275	32.385	2.423	61.544
.587	14.910	.969	24.613	1.320	33.528	2.340	59.436
.589	14.960	.974	24.740	1.328	33.731	2.399	60.935
.594	15.088	.984	24.994	1.358	34.493	2.475	62.865
.599	15.215	.994	25.248	1.368	34.747	2.574	65.380
.608	15.443	.996	25.299	1.370	34.790	2.767	70.282
.620	15.750	1.047	26.594	1.375	34.925	2.890	73.406
.641	16.281	1.057	26.848	1.380	35.052	3.012	76.505
.680	17.272	1.062	26.975	1.411	35.840		

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only.
2. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm) for 3 place decimals, and $\pm .01$ (0.3 mm) for 2 place decimals, angular tolerances are $\pm 0^\circ$, $\pm 1^\circ$ and $0^\circ 0' \pm 30'$.
3. True position (TP) tolerances specified are in accordance with ANSI Y14.5 - 1973.
4. Polarizing stripes, color optional.
5. Color bands: $0.070 \pm .031$ wide, color blue. Band location must be such that it is visible when mounting.
6. Insert arrangements requiring reduced diameters for raised seal barrier on outer raw of contact cavities as indicated.
7. Connector assembly must be used with a backshell. Backshells must be procured separately. See SAE-AS85049 for applicable backshells.
8. Intermateability and rear accessory interchangeability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3470E

REQUIREMENTS:

Dimensions and configuration: See figure 1.

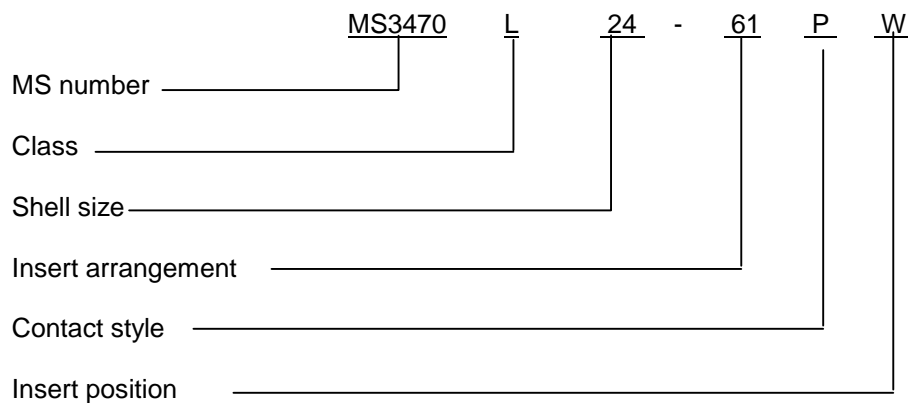
Connector mating: This connector mates with MS3475 and MS3476.

For insert arrangement: See MIL-STD-1669.

Connector identification marking shall be in accordance with MIL-DTL-26482. Example: MS3470L---, minimum height does not apply to shell sizes 8, 10 and 12.

Class E is cancelled and superseded by class L.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4656-012)

Review activities:

Army - AR, AV
Navy - EC, MC, SH
Air Force - 99

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-013.

INCH-POUND

MS3471E
DRAFT
SUPERSEDING
MS3471D
15 December 1998

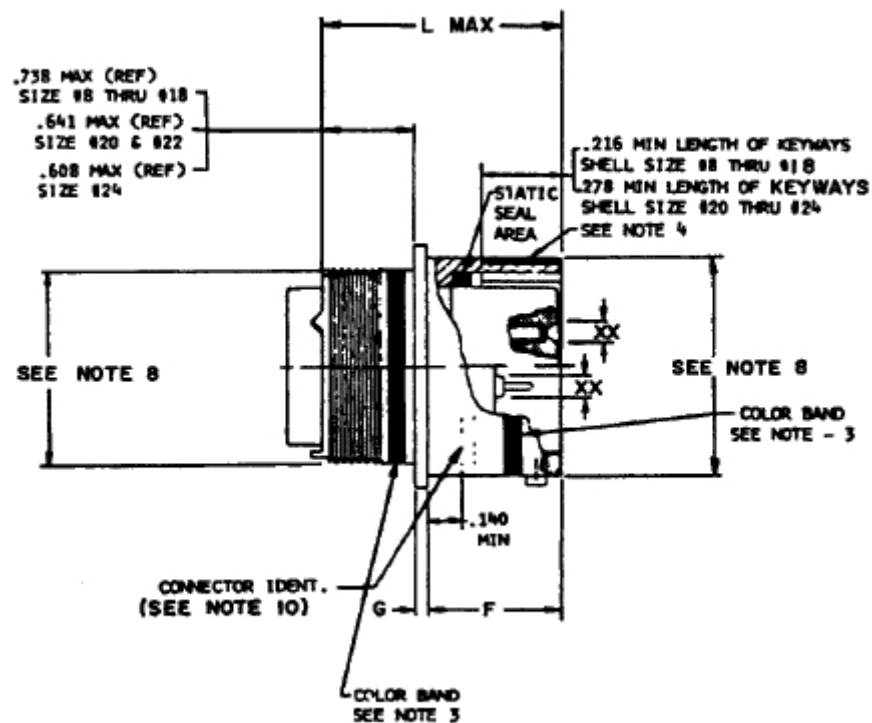
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, CRIMP TYPE,
CABLE CONNECTING, BAYONET COUPLING, CLASSES A, L, S and W

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 6 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations.

MS3471E

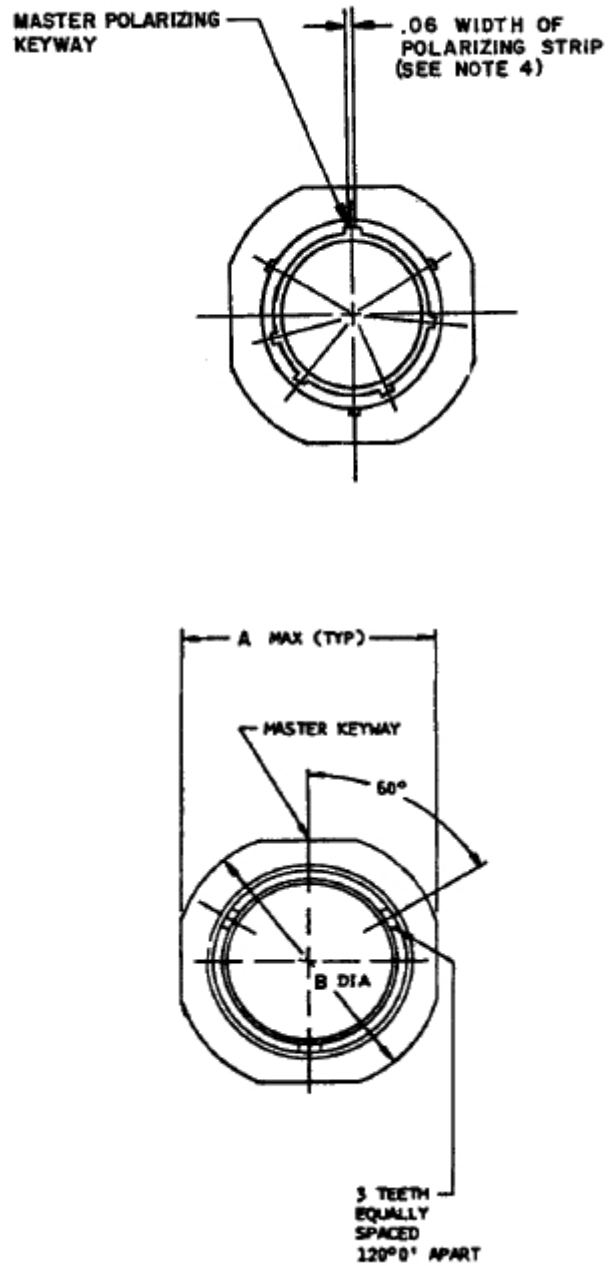


FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

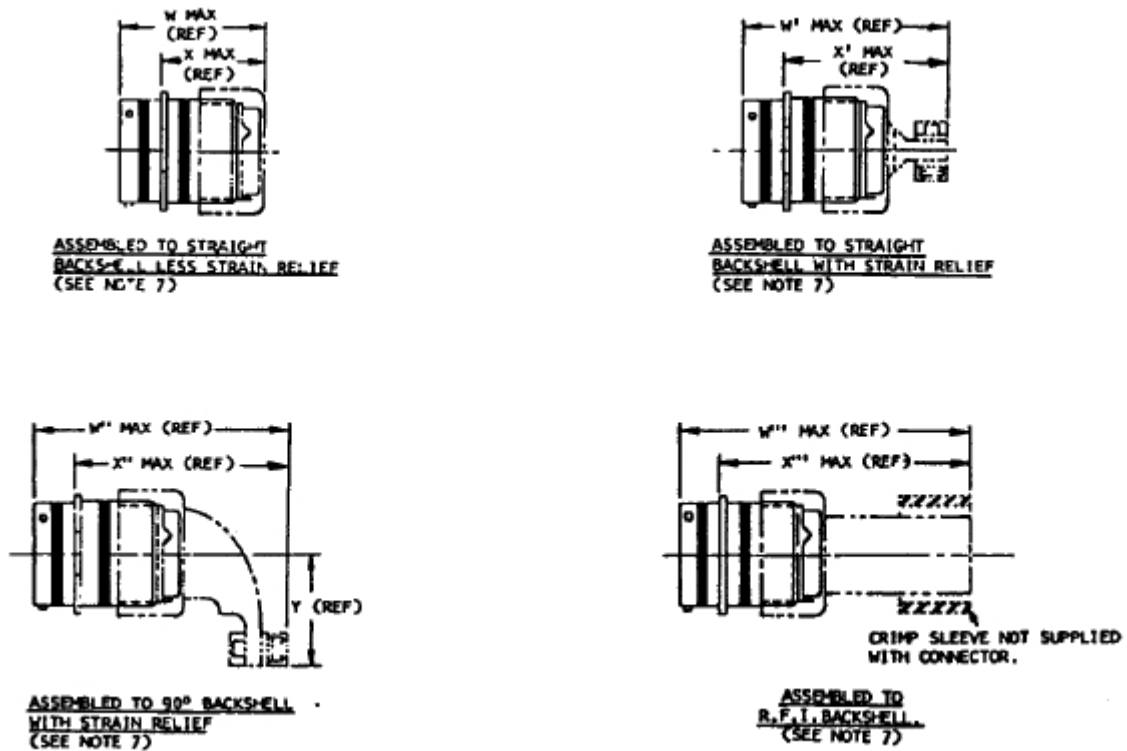


FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3471E

Shell size	A	B	F	G	L	W	W'	W''
8	.828	.958 .918	.462 .431	.078/.046	1.215	1.492	1.842	2.115
10	.954	1.082 1.042	.462 .431	.078/.046	1.215	1.492	1.842	2.115
12	1.047	1.176 1.136	.462 .431	.078/.046	1.215	1.492	1.842	2.250
14	1.141	1.270 1.230	.462 .431	.078/.046	1.215	1.492	2.077	2.340
16	1.234	1.364 1.324	.462 .431	.078/.046	1.215	1.492	2.077	2.475
18	1.328	1.458 1.418	.462 .431	.078/.046	1.215	1.492	2.077	2.574
20	1.453	1.582 1.542	.587 .556	.110/.078	1.275	1.552	2.137	2.767
22	1.578	1.708 1.668	.587 .556	.110/.078	1.275	1.552	2.137	2.890
24	1.703	1.832 1.792	.620 .589	.110/.078	1.275	1.552	2.137	3.012

Shell size	W' "	X	X'	X''	X' "	Y	Pin Max weight (lbs)	Pin Max weight (lbs)
8	2.339	1.061	1.411	1.684	1.920	.830	.0159	.0167
10	2.339	1.061	1.411	1.684	1.920	.880	.0227	.0239
12	2.339	1.061	1.411	1.819	1.920	.950	.0311	.0369
14	2.339	1.061	1.646	1.909	1.920	1.010	.0392	.0483
16	2.339	1.061	1.646	2.044	1.920	1.070	.0503	.0609
18	2.339	1.061	1.646	2.143	1.920	1.130	.0542	.0699
20	2.399	.996	1.581	2.211	1.855	1.190	.0698	.0898
22	2.399	.996	1.581	2.334	1.855	1.260	.0797	.1090
24	2.399	.963	1.548	2.423	1.822	1.320	.1048	.1241

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3471E

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.060	1.524	.958	24.333	1.328	33.731	2.340	59.436
.087	2.210	.963	24.460	1.364	34.646	2.423	61.544
.125	3.175	.969	24.613	1.375	34.925	2.340	59.436
.140	3.556	.996	25.299	1.411	35.840	2.399	60.935
.212	5.385	1.010	25.654	1.418	36.020	2.475	62.865
.216	5.487	1.042	26.467	1.453	36.906	2.574	65.380
.278	7.061	1.047	26.594	1.458	37.033	2.767	70.282
.431	10.948	1.061	26.950	1.492	37.897	2.890	73.406
.462	11.735	1.062	26.975	1.542	39.167	3.012	76.505
.556	14.122	1.070	27.178	1.548	39.319	2.340	59.436
.587	14.910	1.082	27.483	1.552	37.420	2.423	61.544
.589	14.960	1.130	28.702	1.578	40.081		
.594	15.088	1.136	28.854	1.581	40.157		
.608	15.443	1.141	28.981	1.582	40.183		
.620	15.750	1.156	29.362	1.646	41.808		
.641	16.281	1.176	29.870	1.668	42.367		
.719	18.263	1.190	30.226	1.684	42.774		
.738	18.745	1.215	30.861	1.703	43.256		
.812	20.625	1.230	31.242	1.708	43.383		
.828	21.031	1.234	31.344	1.792	45.517		
.830	21.082	1.250	31.750	1.819	46.203		
.880	22.352	1.260	32.004	1.822	46.280		
.906	23.012	1.270	32.258	1.832	46.533		
.918	23.317	1.275	32.385	1.855	47.120		
.950	24.130	1.320	33.528	1.920	48.768		
.954	24.232	1.324	33.630	2.339	59.410		

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only.
2. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm) for 3 place decimals, and $\pm .01$ (0.3 mm) for 2 place decimals, angular tolerances are $\pm 0^\circ$, $\pm 1^\circ$ and $0^\circ 0' \pm 30'$.
3. True position (TP) tolerances specified are in accordance with ANSI Y14.5 - 1973.
4. Polarizing stripes, color optional.
5. Color bands: $0.070 \pm .031$ wide, color blue. Band location must be such that it is visible when mounting.
6. Insert arrangements requiring reduced diameters for raised seal barrier on outer raw of contact cavities as indicated.
7. Connector assembly must be used with a backshell. Backshells must be procured separately. See SAE-AS85049 for applicable backshells.
8. Intermateability and rear accessory interchangeability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 1. Receptacle, class H, dimensions and configurations - Continued.

MS3471E

REQUIREMENTS:

Dimensions and configuration: See figure 1.

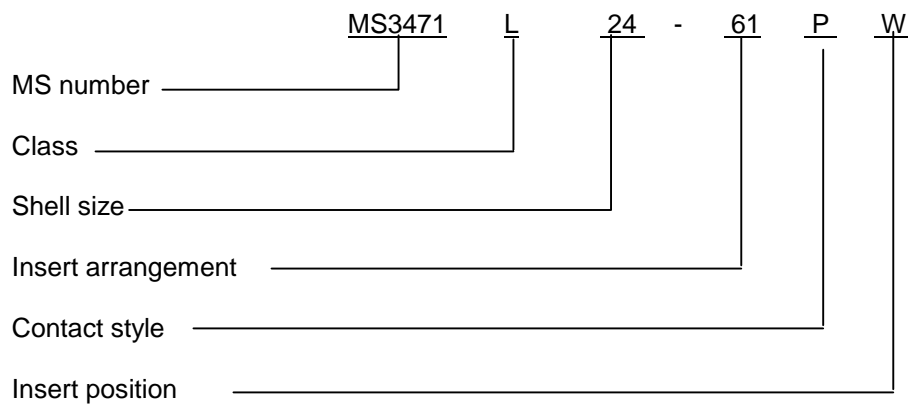
Connector mating: This connector mates with MS3475 and MS3476.

For insert arrangement: See MIL-STD-1669.

Connector identification marking shall be in accordance with MIL-DTL-26482. Example: MS3471L---, minimum height does not apply to shell sizes 8, 10 and 12.

Class E is cancelled and superseded by class L.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4656-013)

Review activities:

Army - AR, AV
Navy - EC, SH
Air Force - 99

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-014.

INCH-POUND

MS3473B
DRAFT
SUPERSEDING
MS3473A
15 December 1998

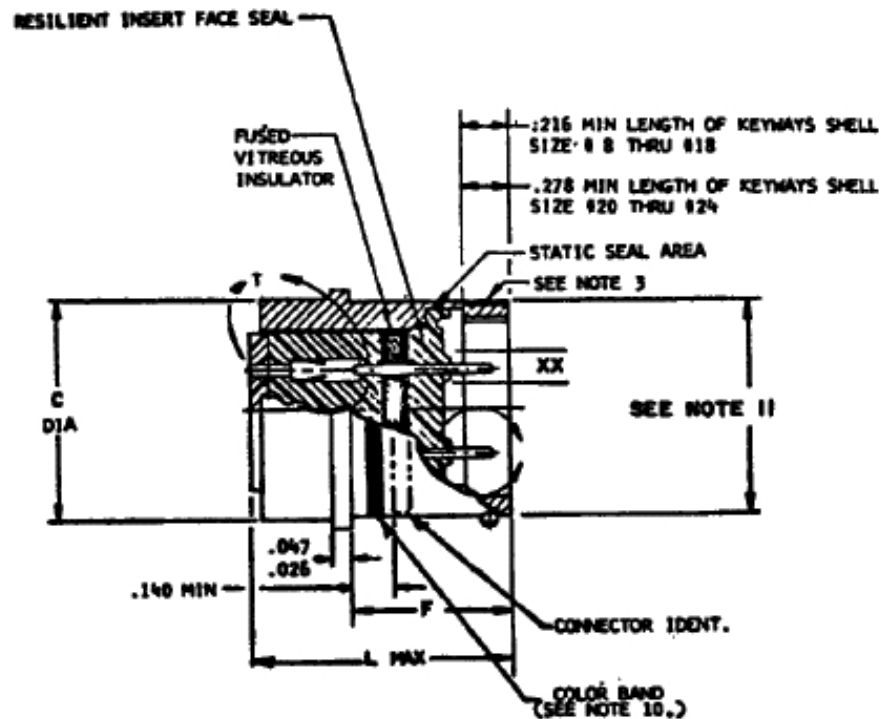
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, HERMETIC,
SOLDERLESS, SOLDER MOUNTING, BAYONET COUPLING, CLASS N

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 4 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class N, dimensions and configurations.

MS3473B

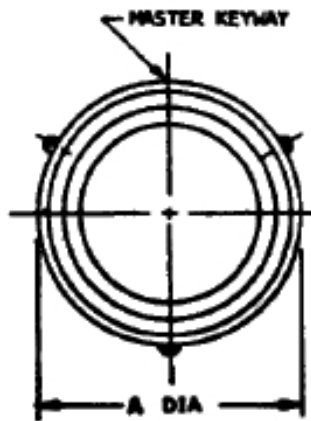
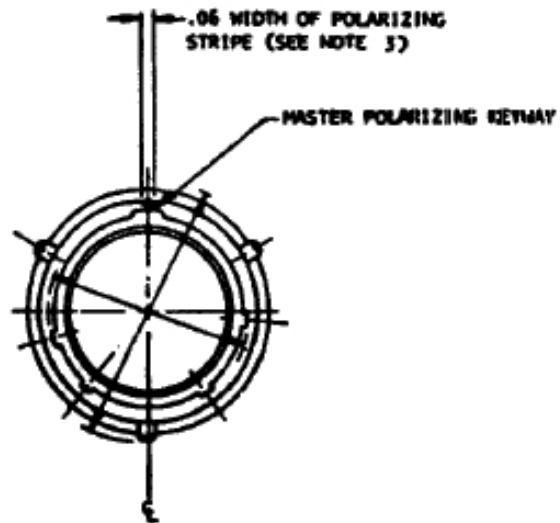


FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

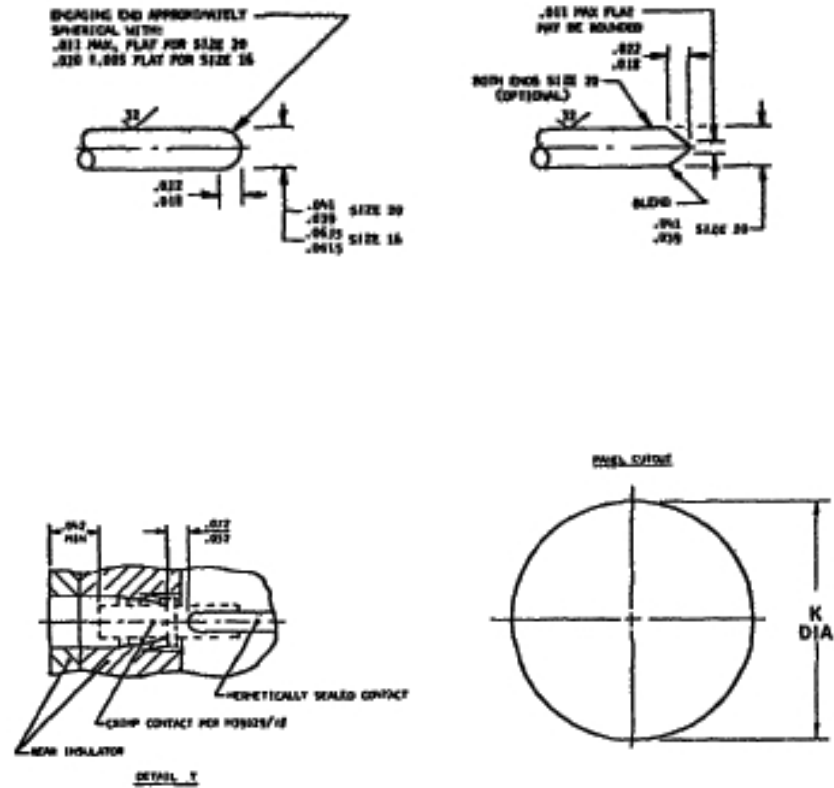


FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3473B

Shell size	A	C	F	K	L	Weight (lbs) max Pin insert
8	.635 .615	.563 .557	.735 .711	.570	1.078	TBD
10	.760 .740	.673 .667	.735 .711	.680	1.078	TBD
12	.854 .834	.782 .776	.735 .711	.789	1.078	TBD
14	.979 .959	.907 .901	.735 .711	.914	1.078	TBD
16	1.104 1.084	1.032 1.026	.735 .711	1.039	1.078	TBD
18	1.228 1.208	1.157 1.151	.735 .711	1.164	1.078	TBD
20	1.322 1.302	1.251 1.245	.823 .799	1.258	1.140	TBD
22	1.448 1.428	1.376 1.370	.823 .799	1.383	1.140	TBD
24	1.574 1.554	1.501 1.495	.823 .799	1.508	1.140	TBD

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3473B

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only.
2. Unless otherwise specified, tolerances shall be $.XX \pm .01$, $.XXX \pm .005$, angular tolerances are $X^\circ \pm 1^\circ$ and $X^\circ X' \pm 30'$.
3. Polarizing stripe, color optional.
4. Insert arrangements requiring reduced diameters for raised seal barrier on outer raw of contact cavities as indicated.

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3473B

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

For insert arrangement: See MIL-STD-1669.

Contact **MIL-C-39029/22-XX-XX** must be used for wire terminations.

Shell material: Cold rolled steel, per **ASTM-A108**.

Shell finish: .00001 minimum tin per **ASTM-B545 & ASTM-B339**, over nickel per **SAE-AMS-QQ-N-290**.

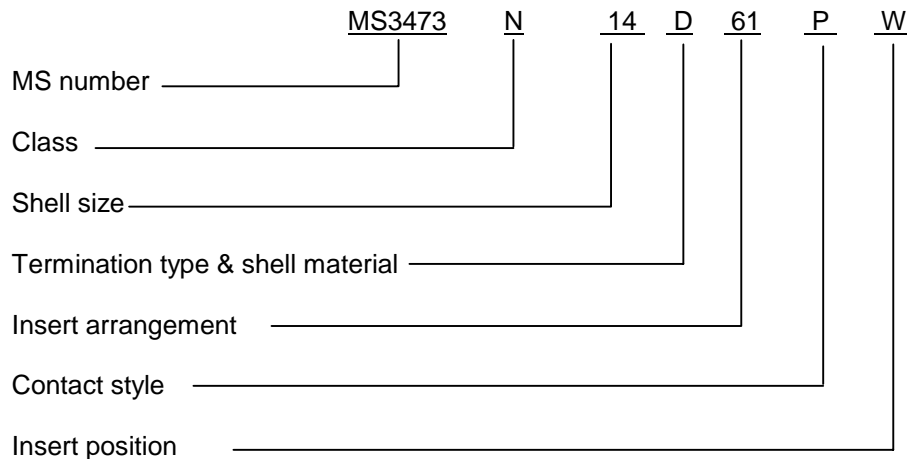
Color band: .070 ± .031 wide, color blue. Band location must be such that it is visible when mounting.

Insertion/removal tool **MIL-I-81969/16-XX** to be used with this connector.

Maximum wire diameter permissible: .074 for size 20 contact, .103 for size 16 contact.

Intermateability dimensions shall be in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-014)

Review activities:

Army - AR
Navy - EC, SH

Note: This draft, dated 18 March 2004, prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-015.

MS3474J
DRAFT
SUPERSEDING
MS3474H
15 December 1998

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, CRIMP TYPE,
REAR MOUNTING JAM NUT, BAYONET COUPLING, CLASSES A, L, S AND W

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.

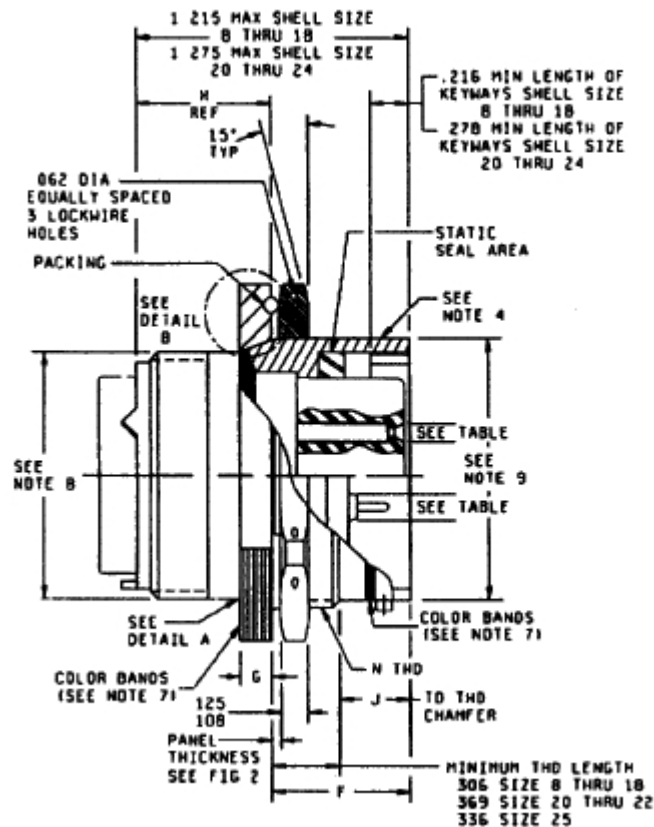


FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations.

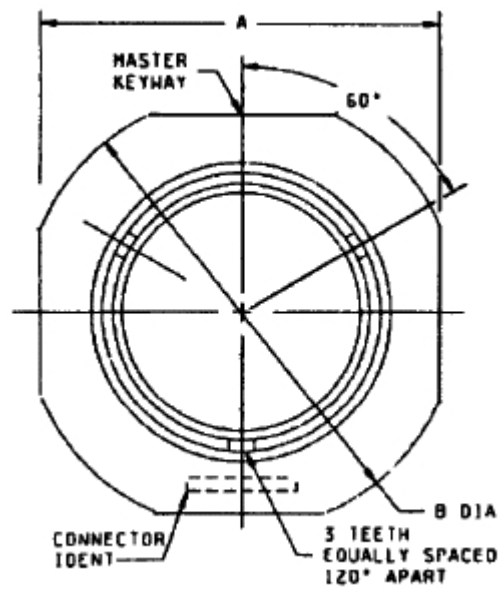
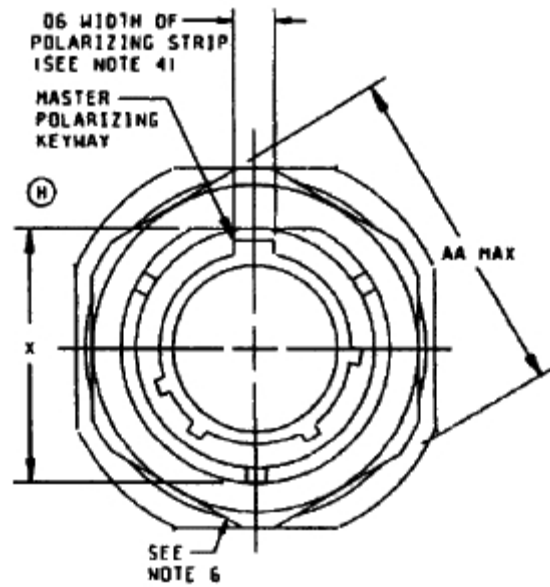
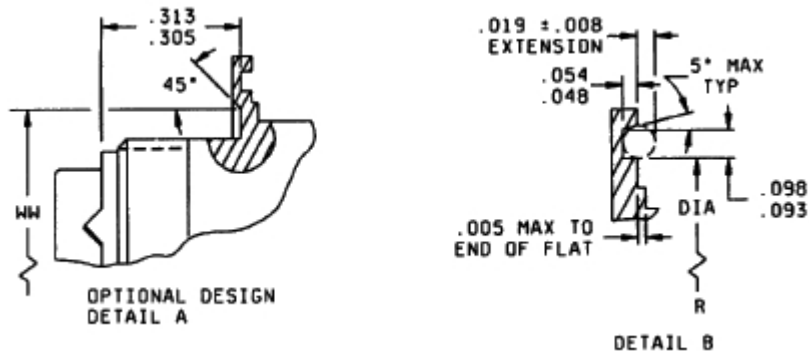


FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3474J



Shell size	A	B	F	G	H	J
8	.954 (24.23) .923 (23.44)	1.078 (27.38) 1.047 (26.59)	.707 (17.95) .658 (17.61)	.113 (2.87) .086 (2.19)	.524 (13.31)	.378 (9.60) .346 (8.79)
10	1.078 (27.38) 1.047 (26.59)	1.203 (30.56) 1.172 (29.77)	.707 (17.95) .658 (17.61)	.113 (2.87) .086 (2.19)	.524 (13.31)	.378 (9.60) .346 (8.79)
12	1.266 (32.16) 1.235 (31.37)	1.391 (35.33) 1.360 (34.54)	.707 (17.95) .658 (17.61)	.113 (2.87) .086 (2.19)	.524 (13.31)	.378 (9.60) .346 (8.79)
14	1.391 (35.33) 1.360 (34.54)	1.516 (38.58) 1.485 (37.72)	.707 (17.95) .658 (17.61)	.113 (2.87) .086 (2.19)	.524 (13.31)	.378 (9.60) .346 (8.79)
16	1.516 (38.51) 1.485 (37.72)	1.641 (41.68) 1.610 (40.89)	.707 (17.95) .658 (17.61)	.113 (2.87) .086 (2.19)	.524 (13.31)	.378 (9.60) .346 (8.79)
18	1.641 (41.68) 1.610 (40.89)	1.766 (44.86) 1.735 (44.07)	.707 (17.95) .658 (17.61)	.113 (2.87) .086 (2.19)	.524 (13.31)	.378 (9.60) .346 (8.79)
20	1.828 (46.63) 1.797 (45.64)	1.954 (49.63) 1.923 (48.84)	.772 (19.61) .721 (18.31)	.148 (3.76) .096 (2.44)	.521 (13.23)	.378 (9.60) .346 (8.79)
22	1.954 (49.63) 1.923 (48.84)	2.078 (52.78) 2.047 (51.99)	.772 (19.61) .721 (18.31)	.148 (3.76) .096 (2.44)	.521 (13.23)	.378 (9.60) .346 (8.79)
24	2.078 (52.78) 2.047 (51.99)	2.203 (55.96) 2.172 (55.17)	.772 (19.61) .721 (18.31)	.148 (3.76) .096 (2.44)	.521 (13.23)	.405 (10.29) .379 (9.63)

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

MS3474J

Shell size	N thread UNEF - 2A	R	X	AA	WW	Pin	Socket
8	.5625-24 (14.29-24)	.609 (15.47)	.525 (13.34)	.767 (19.48)	.570 (14.48) .566 (14.38)	.0224 (.569)	.0296 (.752)
10	.6875-24 (17.46-24)	.734 (18.64)	.650 (16.51)	.892 (22.66)	.693 (17.60) .689 (17.50)	.0342 (8.69)	.0358 (.909)
12	.875-20 (22.23-20)	.921 (23.39)	.813 (20.55)	1.079 (27.41)	.868 (22.05) .864 (21.95)	.0497 (1.262)	.0528 (1.341)
14	1.000-20 (25.40-20)	1.046 (26.57)	.937 (23.80)	1.205 (30.61)	.994 (25.25) .988 (25.10)	.0621 (1.577)	.0673 (1.709)
16	1.125-18 (28.58-18)	1.171 (29.74)	1.061 (26.95)	1.329 (33.76)	1.122 (28.50) 1.116 (28.35)	.0766 (1.946)	.0858 (2.180)
18	1.250-18 (31.75-18)	1.296 (32.92)	1.186 (30.12)	1.455 (36.96)	1.238 (31.45) 1.232 (31.29)	.0899 (2.283)	.1003 (2.548)
20	1.375-18 (34.93-18)	1.484 (37.69)	1.311 (33.30)	1.579 (40.11)	1.364 (34.65) 1.359 (34.52)	.1153 (2.929)	.1280 (3.251)
22	1.500-18 (38.10-18)	1.609 (40.87)	1.436 (36.47)	1.705 (43.81)	1.492 (37.90) 1.482 (37.64)	.1336 (3.393)	.1495 (3.797)
24	1.625-18 (41.28-18)	1.734 (44.04)	1.561 (39.65)	1.829 (46.46)	1.617 (41.07) 1.607 (40.82)	.1578 (4.008)	.1777 (4.514)

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.005	.13	.060	1.50	.216	5.49	.336	8.53
.008	.20	.062	1.57	.278	7.06	.369	9.37
.019	.48	.093	2.36	.305	7.75	1.215	30.86
.048	1.22	.108	2.74	.306	7.77	1.275	32.39
.054	1.37	.125	3.18	.313	1.95		

NOTES:

1. Dimensions are in inches. Metric equivalents are in parentheses.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm) for 3 place decimals, and $\pm .01$ (0.3 mm) for 2 place decimals, angular tolerances are $\pm 0^\circ$, $\pm 1^\circ$ and $0^\circ 0' \pm 30'$.
4. Polarizing stripe, color optional.
5. Class E is cancelled and replaced by class L.
6. MS3186 Hex nut may be substituted, provided .125/.108 thickness requirement is satisfied.
5. Color bands: $0.070 \pm .031$ wide, color blue. Band location must be such that it is visible when mounted.
6. Interchangeability and rear accessory interchangeability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 1. Receptacle, classes A, L, S and W, dimensions and configurations - Continued.

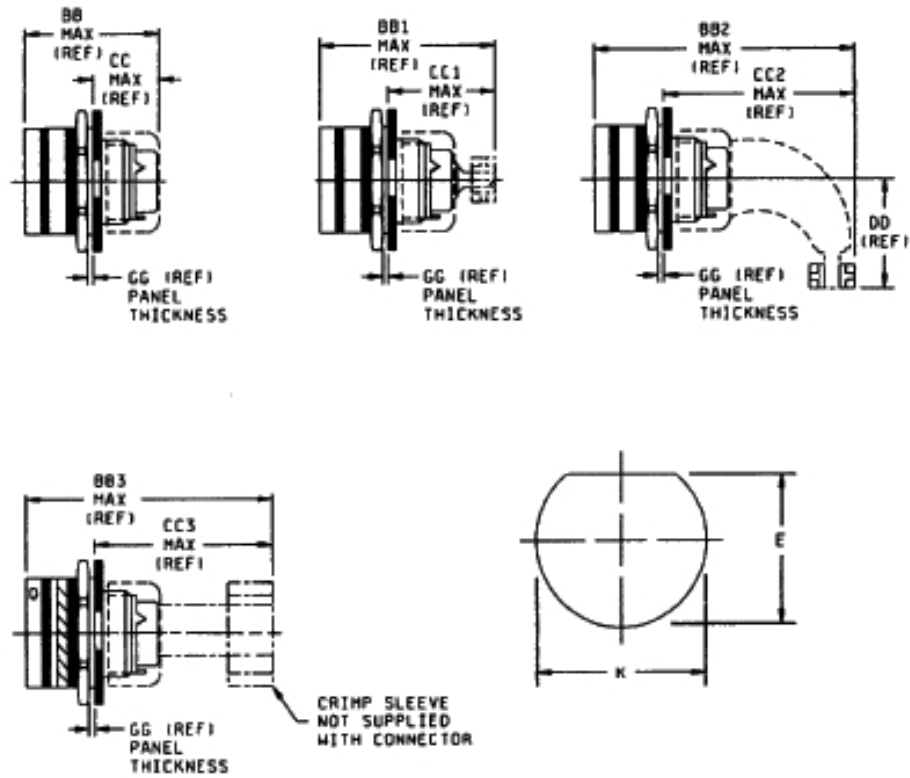


FIGURE 2. Receptacle, classes A, L, S and W, backshell.

MS3474J

Shell size	E	K	BB	BB1	BB2	BB3	CC
8	.536 (13.61)	.572 (15.53)	1.492 (37.90)	1.842 (46.79)	2.115 (53.72)	2.339 (59.41)	.801 (20.35)
10	.661 (16.79)	.697 (17.70)	1.492 (37.90)	1.842 (46.79)	2.115 (53.72)	2.339 (59.41)	.801 (20.35)
12	.824 (20.93)	.895 (22.73)	1.492 (37.90)	1.842 (46.79)	2.250 (57.12)	2.339 (59.41)	.801 (20.35)
14	.948 (24.08)	1.010 (25.65)	1.492 (37.90)	2.077 (52.76)	2.340 (59.44)	2.339 (59.41)	.801 (20.35)
16	1.072 (27.23)	1.135 (28.83)	1.492 (37.90)	2.077 (52.76)	2.475 (62.87)	2.339 (59.41)	.801 (20.35)
18	1.197 (30.40)	1.260 (32.00)	1.492 (37.90)	2.077 (52.76)	2.574 (65.38)	2.339 (59.41)	.801 (20.35)
20	1.322 (33.58)	1.385 (35.18)	1.522 (39.42)	2.137 (54.38)	2.767 (70.28)	2.397 (60.88)	.798 (20.27)
22	1.447 (36.75)	1.510 (38.35)	1.522 (39.42)	2.137 (54.38)	2.890 (73.41)	2.397 (60.88)	.798 (20.27)
24	1.572 (39.93)	1.635 (41.53)	1.522 (39.42)	2.137 (54.38)	3.012 (76.50)	2.397 (60.88)	.798 (20.27)

FIGURE 2. Receptacle, classes A, L, S and W, backshell - Continued.

MS3474J

Shell size	CC1	CC2	CC3	DD	GG
8	1.151 (29.24)	1.424 (36.17)	1.648 (41.86)	.830 (21.08)	.187 (4.75) .062 (1.57)
10	1.151 (29.24)	1.424 (36.17)	1.648 (41.86)	.880 (22.35)	.187 (4.75) .062 (1.57)
12	1.151 (29.24)	1.559 (39.60)	1.648 (41.86)	.950 (24.13)	.187 (4.75) .062 (1.57)
14	1.386 (35.20)	1.649 (41.88)	1.648 (41.86)	1.010 (25.65)	.187 (4.75) .062 (1.57)
16	1.386 (35.20)	1.784 (45.31)	1.648 (41.86)	1.070 (27.18)	.187 (4.75) .062 (1.57)
18	1.386 (35.20)	1.883 (47.83)	1.648 (41.86)	1.130 (28.70)	.187 (4.75) .062 (1.57)
20	1.383 (35.13)	2.013 (51.13)	1.645 (41.78)	1.190 (30.23)	.250 (6.35) .062 (1.57)
22	1.383 (35.13)	2.136 (54.25)	1.645 (41.78)	1.260 (32.00)	.250 (6.35) .062 (1.57)
24	1.383 (35.13)	2.258 (57.35)	1.645 (41.78)	1.320 (33.53)	.219 (5.56) .062 (1.57)

NOTES:

1. Dimensions are in inches. Metric equivalents are in parentheses.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm) for 3 place decimals, and $\pm .01$ (0.3 mm) for 2 place decimals, angular tolerances are $\pm 0^\circ$, $\pm 1^\circ$ and $0^\circ 0' \pm 30'$.
4. Rear accessory interchangeability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 2. Receptacle, classes A, L, S and W, backshell - Continued.

MS3474J

Table 1. Insert arrangements requiring reduced diameters for raised seal barriers or lead-in chamfer on outer row of contact cavities.

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-9	A, B, C, D, E, F, G, H, J
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

REQUIREMENTS:

Dimensions and configuration: See figures 1 and 2 and table 1.

Mating connector: This connector mates with MS3475 and MS3476.

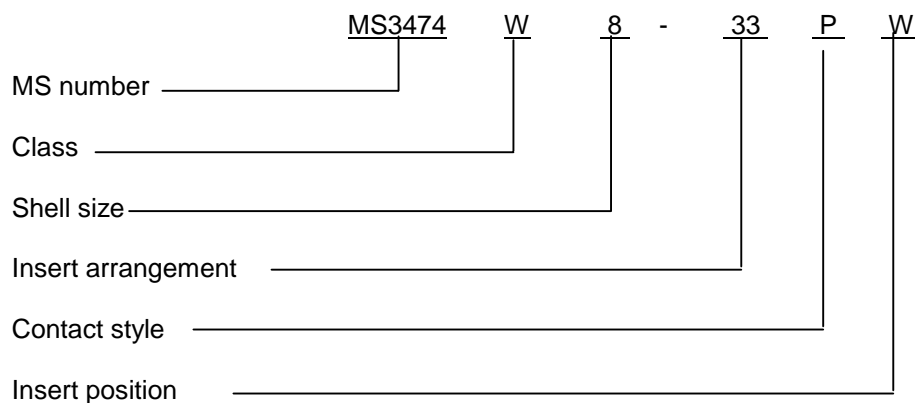
For insert arrangement: See MIL-STD-1669.

For connector accessories see SAE-AS85049.

Connector assembly must be used with a backshell. Backshells must be acquired separately.

Connector identification marking shall be in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



MS3474J

Suppression data:

MS3474L**-*** supersedes MIL-C-83723/5R*****
MS3474L**-*** supersedes MIL-C-83723/6R*****
MS3474***-***W supersedes MS3114E**-**W

Cross reference of class designators: Old (MIL-DTL-83723, classes A, R and G)
New (MIL-DTL-26482 classes A, L and S)

Referenced documents. In addition to MIL-DTL-26482, this document references the following:

MS3114
MS3186
MS3474
MS3475
MS3476
MIL-C-83723/5
MIL-C-83723/6
MIL-DTL-26482
MIL-STD-1669
SAE-AS85049

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4656-015)

Review activities:

Army - AR, AV
Navy - EC, MC, SH
Air Force - 99
NASA - NA

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-016.

INCH-POUND

MS3475E
DRAFT
SUPERSEDING
MS3475D
15 December 1998

DETAIL SPECIFICATION SHEET

CONNECTORS, PLUG, ELECTRICAL, RFI SHIELDED, SERIES II,
CRIMP TYPE, BAYONET COUPLING, CLASSES L, S AND W

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.

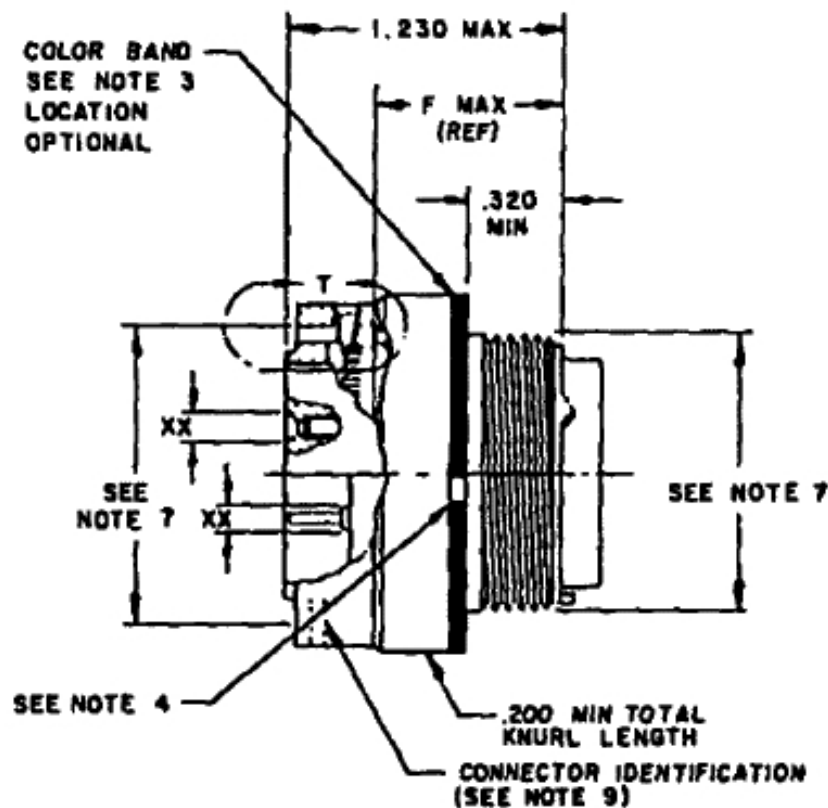


FIGURE 1. Plug, classes A, L and S, dimensions.

MS3475E

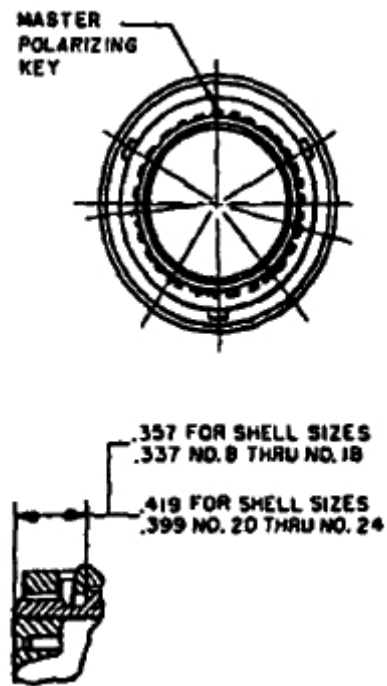


FIGURE 1. Plug, classes A, L and S, dimensions - Continued.

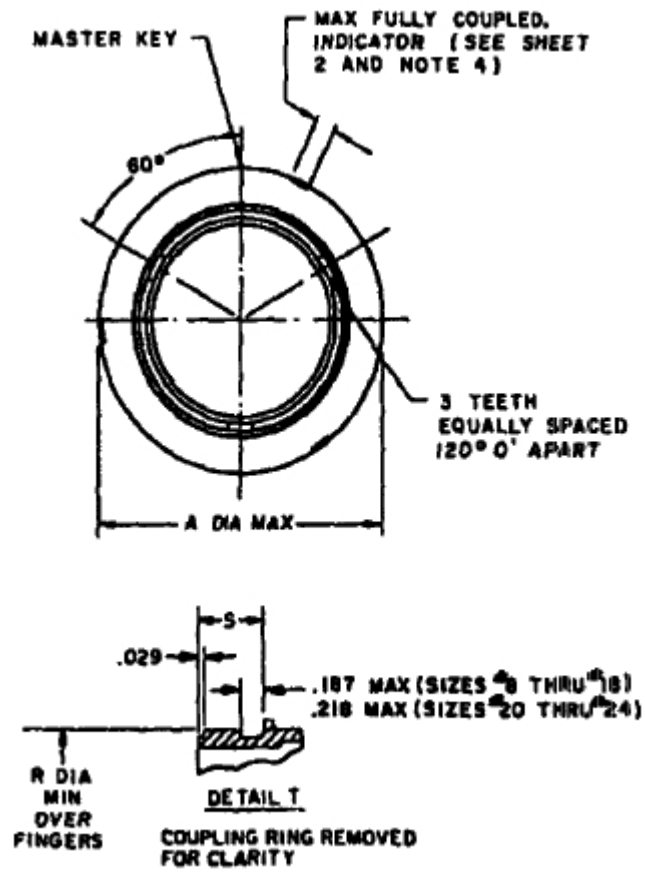
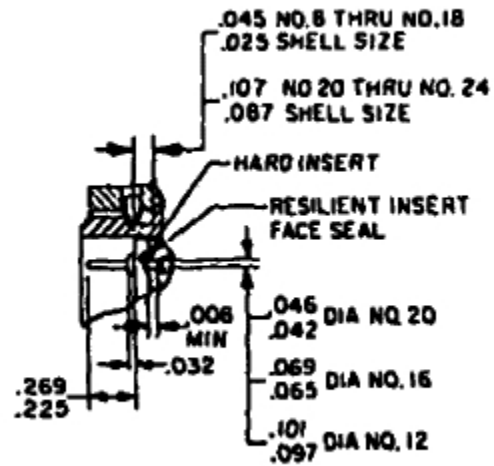


FIGURE 1. Plug, classes A, L and S, dimensions - Continued.



Inches	mm	Inches	mm	Inches	mm	Inches	mm
.008	.20	.046	1.17	.187	4.75	.357	9.07
.010	.25	.065	1.66	.200	5.08	.399	10.13
.025	.64	.069	1.75	.218	5.54	.419	10.64
.029	.74	.087	2.21	.225	5.72	1.230	31.24
.032	.81	.097	2.46	.269	6.83		
.042	1.07	.101	2.57	.320	8.13		
.045	1.14	.107	2.72	.337	8.56		

FIGURE 1. Plug, classes A, L and S, dimensions - Continued.

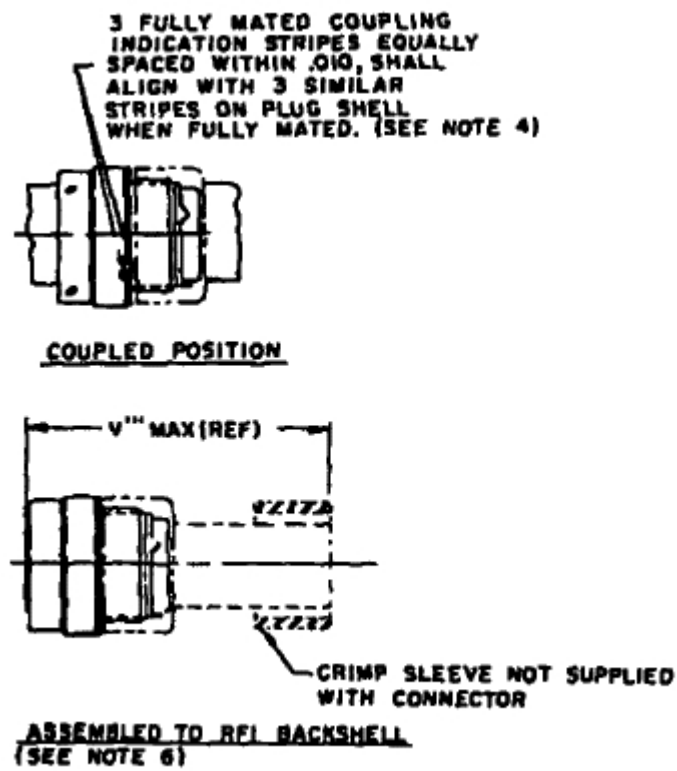


FIGURE 1. Plug, classes A, L and S, dimensions - Continued.

MS3475E

Shell size	A	F	R	S	V'' †	Max weight in lbs <u>1</u> /	
						Pin	Socket
8	.782 (19.86)	.887 (22.53)	.369 (9.37)	.363/.343 (9.22/8.71)	2.334 (59.28)	.0204 (.518)	.0216 (.549)
10	.926 (23.52)	.887 (22.53)	.497 (12.62)	.363/.343 (9.22/8.71)	2.334 (59.28)	.0406 (1.031)	.0421 (1.069)
12	1.043 (26.49)	.887 (22.53)	.614 (15.60)	.363/.343 (9.22/8.71)	2.334 (59.28)	.0505 (1.283)	.0536 (1.361)
14	1.183 (30.05)	.887 (22.53)	.739 (18.77)	.363/.343 (9.22/8.71)	2.334 (59.28)	.0639 (1.623)	.0692 (1.758)
16	1.305 (33.15)	.887 (22.53)	.864 (21.95)	.363/.343 (9.22/8.71)	2.334 (59.28)	.0788 (2.002)	.0880 (2.235)
18	1.391 (35.33)	.887 (22.53)	.969 (24.61)	.363/.343 (9.22/8.71)	2.334 (59.28)	.0864 (2.195)	.0957 (2.431)
20	1.531 (38.89)	.825 (20.96)	1.094 (27.79)	.425/.405 (10.80/10.29)	2.334 (59.28)	.1016 (2.581)	.1114 (2.830)
22	1.656 (42.06)	.825 (20.96)	1.219 (30.96)	.425/.405 (10.80/10.29)	2.334 (59.28)	.1241 (3.152)	.1363 (3.462)
24	1.777 (45.14)	.825 (20.96)	1.344 (34.14)	.425/.405 (10.80/10.29)	2.334 (59.28)	.1400 (3.556)	.1916 (4.867)

1/ Less contacts and accessories. Maximum Weights do not apply to class S.

FIGURE 1. Plug, classes A, L and S, dimensions - Continued.

MS3475E

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only and are in parentheses.
2. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm) for 3 place decimals, and $\pm .01$ (0.3 mm) for 2 place decimals, angular tolerances are $\pm 0^\circ$, $\pm 1^\circ$ and $0^\circ 0' \pm 30'$.
3. Color bands: $0.070 \pm .031$ wide, color blue.
4. Coupling indicator color optional.
5. Connector assembly must be used with a backshell. Backshell must be procured separately. See SAE-AS85049 for applicable backshells.

FIGURE 1. Plug, classes A, L and S, dimensions - Continued.

Table 1. Insert arrangements requiring reduced diameters for raised seal barriers or lead-in chamfer on outer row of contact cavities.

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

REQUIREMENTS:

Dimensions and configuration: See figures 1 through 5.

Connector mating: This connector mates with MS3470 through MS3474, MS3477 and MS3479.

Intermateability and rear accessory interchangeability dimensions are in accordance with MIL-DTL-26482.

Class E is cancelled and replaced by class L.

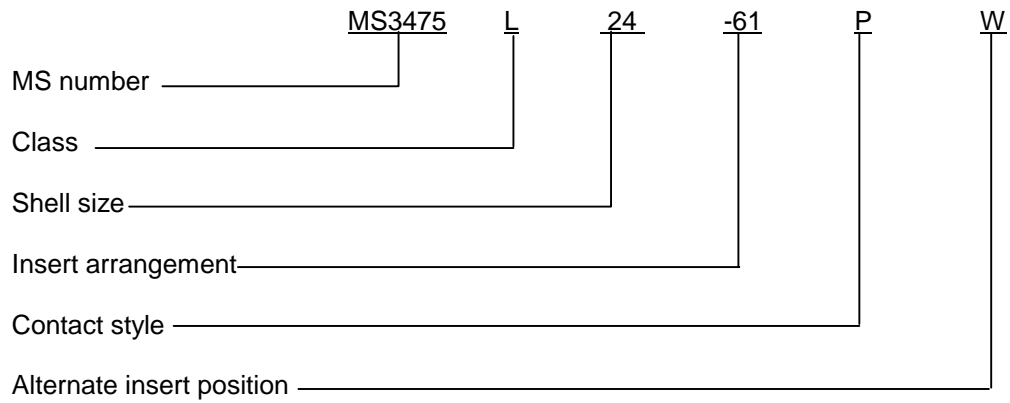
For insert arrangement, see MIL-STD-1669.

Insert arrangements requiring reduced diameters for raised seal barriers or lead-in chamfer on outer row of contact cavities as indicated, see table 1.

Connector identification marking shall be in accordance with MIL-DTL-26482. Example: MS3475L----, minimum height does not apply to shell sizes 8, 10 and 12.

MS3475E

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-26482, this document references the following:

MS3470
MS3471
MS3472
MS3473
MS3474
MS3477
MS3479
MIL-DTL-26482
MIL-STD-1669
SAE-AS85049

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - AS
Air Force - 11
DLA - CC

Review activities:
Army - AR, AV
Navy - EC, SH
Air Force - 99

Preparing activity:
DLA - CC
(Project 5935-4656-016)

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-017.

INCH-POUND

MS3477B
DRAFT
SUPERSEDING
MS3477A
15 December 1998

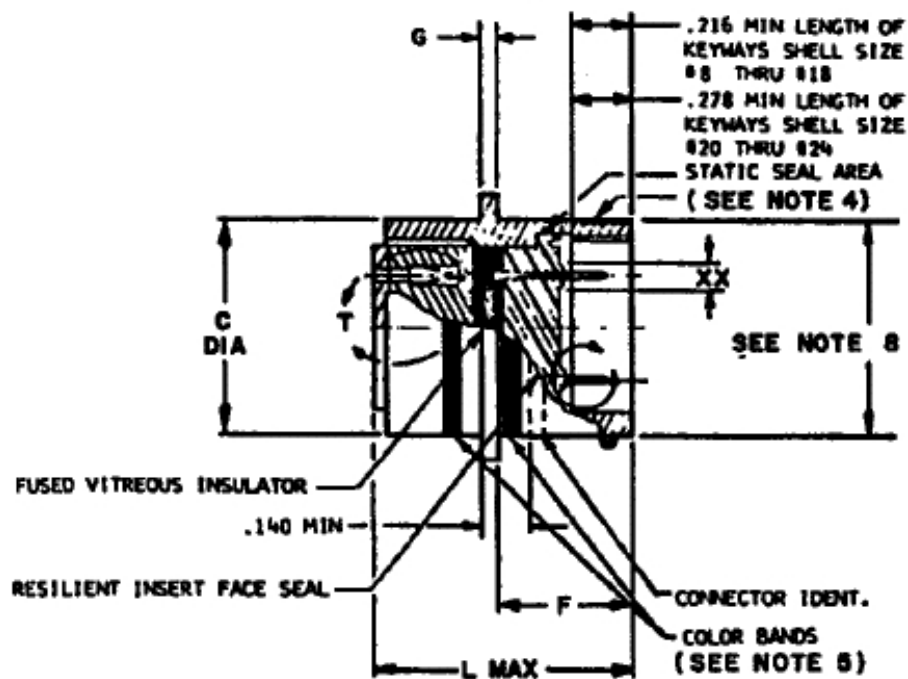
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, HERMETIC,
SOLDERLESS, BOX MOUNTING, BAYONET COUPLING, CLASS N

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 6 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class N, dimensions and configurations.

MS3477B

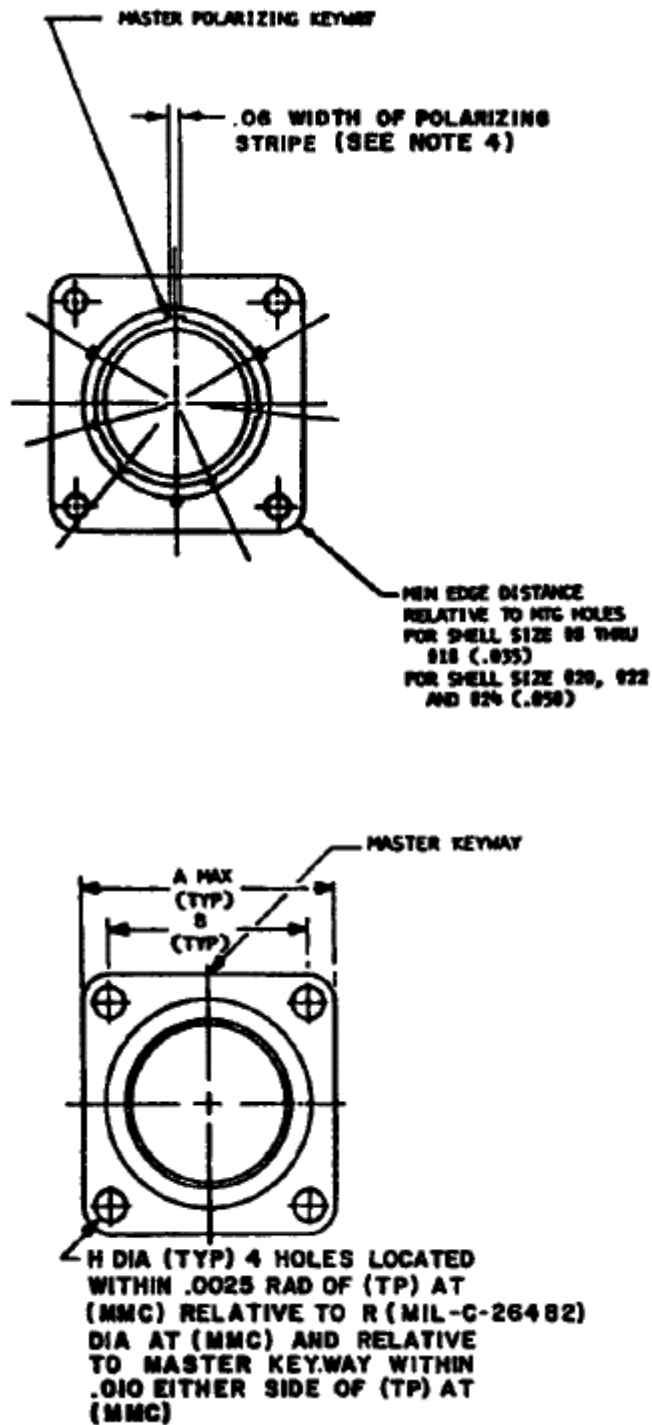


FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3477B

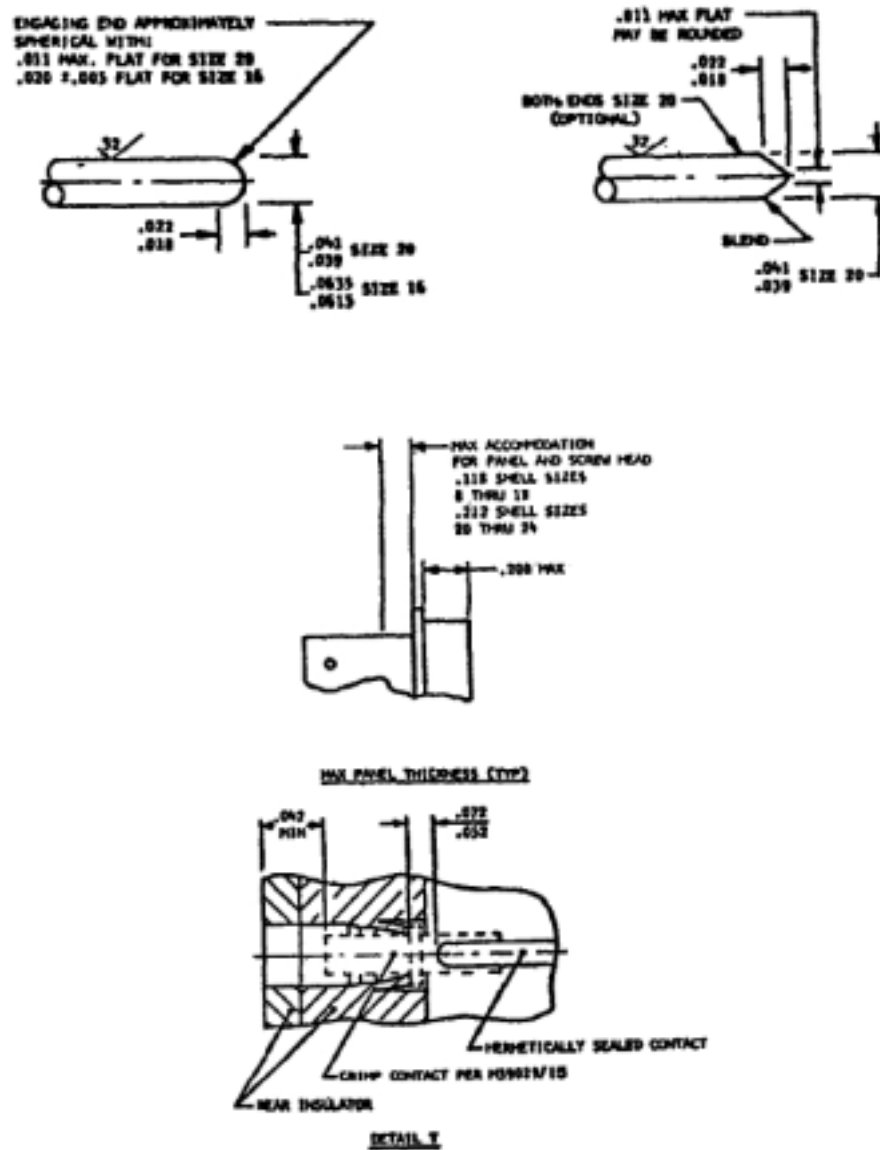


FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3477B

Shell size	A	B	C	F
8	.828	.594	.563 .557	.704 .680
10	.954	.719	.673 .667	.704 .680
12	1.047	.812	.782 .776	.704 .680
14	1.141	.906	.907 .901	.704 .680
16	1.234	.969	1.032 1.026	.704 .680
18	1.328	1.062	1.157 1.151	.704 .680
20	1.453	1.156	1.251 1.245	.756 .739
22	1.578	1.250	1.376 1.370	.756 .739
24	1.703	1.375	1.501 1.495	.756 .739

Shell size	G	H	L	Panel Cutout dia	Weight (lbs) max Pin insert
8	.078 .046	.120	1.078	.570	TBD
10	.078 .046	.120	1.078	.680	TBD
12	.078 .046	.120	1.078	.789	TBD
14	.078 .046	.120	1.078	.914	TBD
16	.078 .046	.120	1.078	1.039	TBD
18	.078 .046	.120	1.078	1.164	TBD
20	.110 .078	.120	1.140	1.258	TBD
22	.110 .078	.120	1.140	1.383	TBD
24	.110 .078	.147	1.140	1.508	TBD

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3477B

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only.
2. Unless otherwise specified, tolerances shall be $.XX \pm .01$, $.XXX \pm .005$, angular tolerances are $X^\circ \pm 1^\circ$ and $X^\circ X' \pm 30'$.
3. True position (TP) tolerances specified are in accordance with ANSI Y14.5-1973.
4. Polarizing stripe, color optional.
5. Color band: $.070 \pm .031$ wide, color blue. Band location must be such that it is visible when mounting.
6. Insert arrangements requiring reduced diameters for raised seal barriers on outer row of contact cavities as indicated (see figure 1).

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3477B

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

For insert arrangement: See MIL-STD-1669.

Contact **MIL-C-39029/22-XX-XX** must be used for wire terminations.

Shell material: Cold rolled steel, per **ASTM-A108**.

Shell finish: .00001 minimum tin per **ASTM-B545 & ASTM-B339**, over nickel per **SAE-AMS-QQ-N-290**.

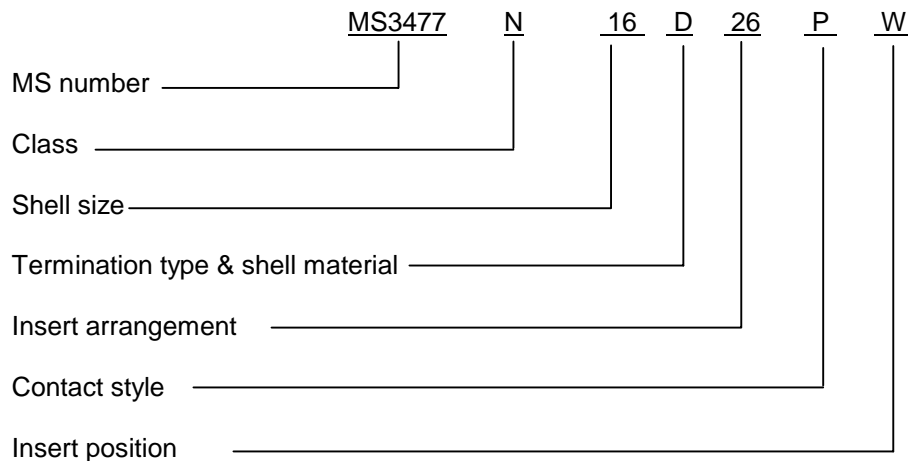
Color band: .070 ± .031 wide, color blue. Band location must be such that it is visible when mounting.

Insertion/removal tool **MIL-I-81969/16-XX** to be used with this connector.

Maximum wire diameter permissible: .074 for size 20 contact, .103 for size 16 contact.

Intermateability dimensions shall be in accordance with MIL-DTL-26482.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-017)

Review activities:

Army - AV
Navy - EC, SH

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-018.

INCH-POUND

MS3479C
DRAFT
SUPERSEDING
MS3479B
15 December 1998

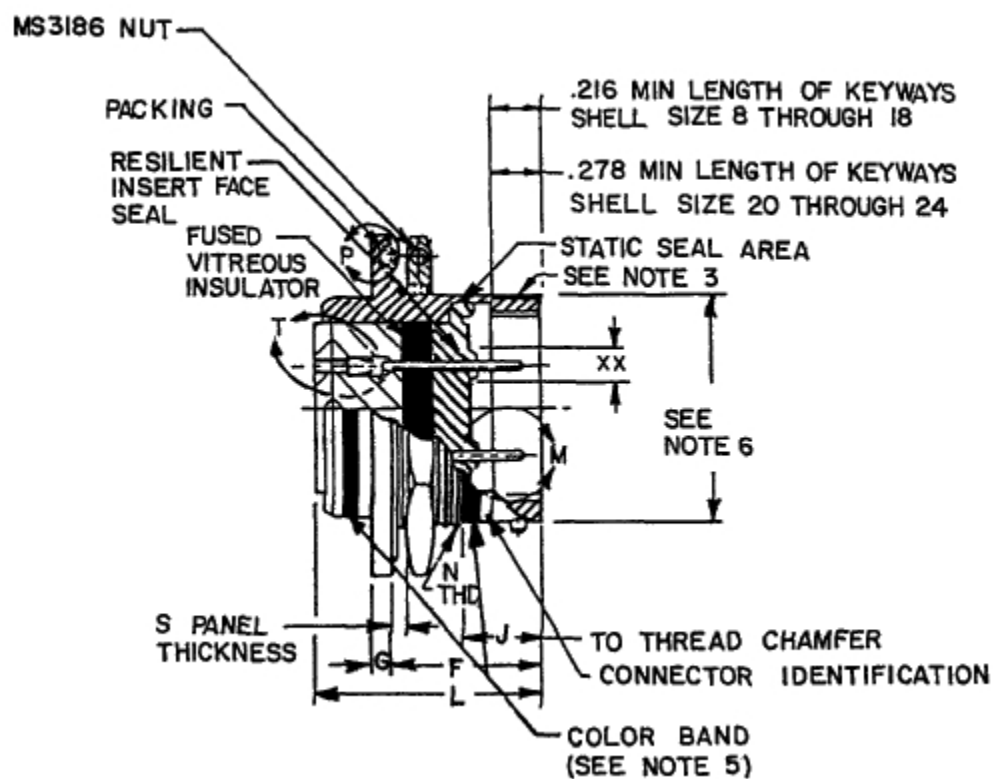
DETAIL SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, SERIES II, HERMETIC,
SOLDERLESS, REAR MOUNTING, JAM NUT, BAYONET COUPLING, CLASS N

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.



XX: see note 6 and figure 1 for contact cavities requiring reduced dimensions.

FIGURE 1. Receptacle, class N, dimensions and configurations.

MS3479C

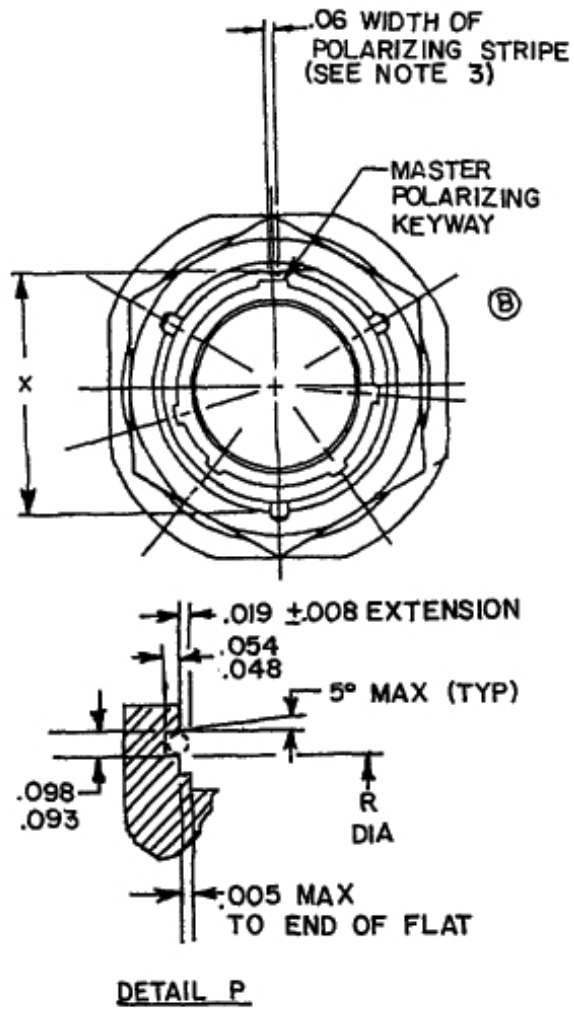


FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3479C

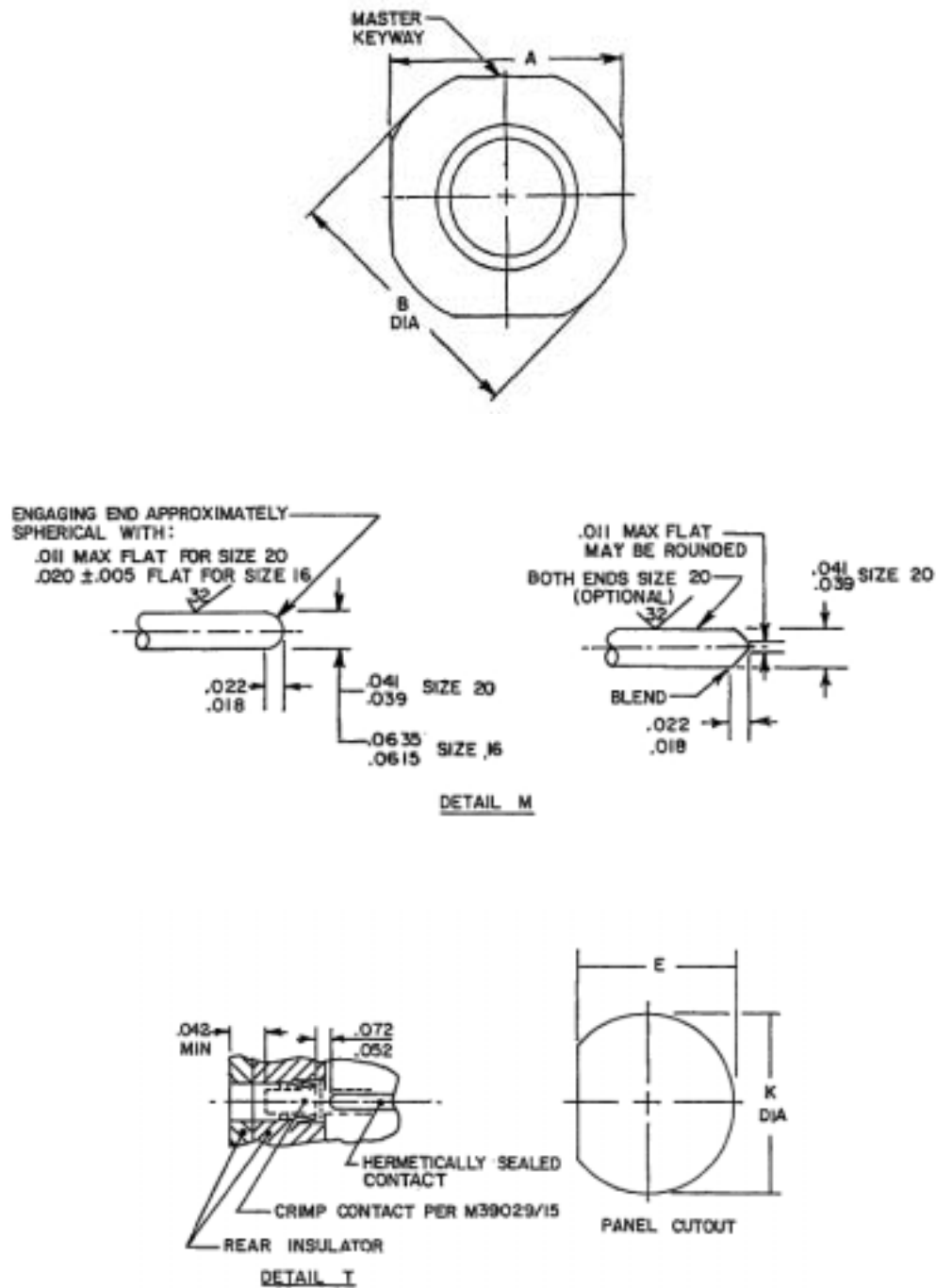


FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3479C

Shell size	A	B	E	F	G	J	K	L
8	.954 .924	1.078 1.047	.536	.887 .867	.113 .097	.378 .358	.572	1.078
10	1.078 1.047	1.203 1.172	.661	.887 .867	.113 .097	.378 .358	.697	1.078
12	1.266 1.235	1.391 1.360	.824	.887 .867	.113 .097	.378 .358	.895	1.078
14	1.391 1.360	1.516 1.485	.948	.887 .867	.113 .097	.378 .358	1.010	1.078
16	1.516 1.485	1.641 1.610	1.072	.887 .867	.113 .097	.378 .358	1.135	1.078
18	1.641 1.610	1.766 1.735	1.197	.887 .867	.113 .097	.378 .358	1.260	1.078
20	1.828 1.797	1.954 1.923	1.322	.916 .896	.148 .128	.378 .358	1.385	1.140
22	1.954 1.923	2.078 2.047	1.447	.916 .896	.148 .128	.378 .358	1.510	1.140
24	2.078 2.047	2.203 2.172	1.572	.916 .896	.148 .128	.405 .385	1.635	1.140

Shell size	N UNEF-2A	R	S	X	Weight (lbs) max Pin insert
8	.5625-24	.609	.187 .062	.525	TBD
10	.6875-24	.734	.187 .062	.650	TBD
12	.875-20	.921	.187 .062	.813	TBD
14	1.000-20	1.046	.187 .062	.937	TBD
16	1.125-18	1.171	.187 .062	1.061	TBD
18	1.250-18	1.296	.187 .062	1.186	TBD
20	1.375-18	1.484	.250 .062	1.311	TBD
22	1.500-18	1.609	.250 .062	1.436	TBD
24	1.625-18	1.734	.250 .062	1.561	TBD

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3479C

Shell size	Insert Arrangement	Contact Cavities
8	-33 & -98	A, B, C.
12	-10	C, G.
14	-12	A, B, C, D, E, F, G, H.
14	-18	A, C, E, G, J, L.
14	-19	B, D, F, H, K, M.
16	-26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R.
18	-32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T.
22	-41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y.

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only.
2. Unless otherwise specified, tolerances shall be $.XX \pm .01$, $.XXX \pm .005$, angular tolerances are $X^\circ \pm 1^\circ$ and $X^\circ X' \pm 30'$.
3. Polarizing stripe, color optional.
4. Insert arrangements requiring reduced diameters for raised seal barriers on outer row of contact cavities as indicated (see figure 1).
5. Color band: $.070 \pm .031$ wide, color blue. Band location must be such that it is visible when mounting.
6. Intermateability dimensions shall be in accordance with MIL-DTL-26482.

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3479C

Inches	mm	Inches	mm	Inches	mm
.005	.13	.650	16.51	1.296	32.92
.008	.20	.6875	17.46	1.311	33.30
.018	.46	.697	17.70	1.322	33.58
.019	.48	.734	18.64	1.360	34.54
.020	.51	.813	20.65	1.375	34.92
.022	.56	.824	20.92	1.385	35.18
.039	.99	.875	22.22	1.391	35.33
.041	1.04	.880	22.35	1.436	36.47
.042	1.07	.887	22.52	1.447	36.75
.048	1.22	.895	22.73	1.484	37.69
.052	1.32	.896	22.76	1.500	38.10
.054	1.37	.921	23.39	1.510	38.35
.06	1.5	.924	23.47	1.516	38.51
.0615	1.562	.937	23.80	1.561	39.65
.062	1.57	.948	24.08	1.572	39.93
.0635	1.613	.954	24.23	1.609	40.87
.072	1.83	1.000	25.40	1.610	40.89
.093	2.36	1.010	25.65	1.625	41.28
.098	2.49	1.046	26.57	1.635	41.53
.113	2.87	1.047	26.59	1.641	41.68
.128	3.25	1.061	26.95	1.734	44.04
.148	3.76	1.072	27.23	1.735	44.06
.187	4.75	1.078	27.38	1.766	44.86
.216	.549	1.125	28.58	1.828	46.43
.250	6.35	1.135	28.83	1.923	48.84
.278	7.29	1.171	29.74	1.954	49.63
.378	9.60	1.172	29.77	2.047	51.99
.385	9.78	1.186	30.12	2.078	52.78
.405	10.299	1.197	30.40	2.172	55.17
.525	13.34	1.203	30.56	2.203	55.96
.536	13.61	1.235	31.37		
.5625	14.288	1.250	31.75		
.572	14.53	1.260	32.00		
.609	15.47	1.266	32.16		

FIGURE 1. Receptacle, class N, dimensions and configurations - Continued.

MS3479C

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Connector mating: This connector mates with MS3475 and MS3476.

For insert arrangement: See MIL-STD-1669.

Contact **MIL-C-39029/22-XX-XX** must be used for wire terminations.

Shell material: Cold rolled steel, per **ASTM-A108**.

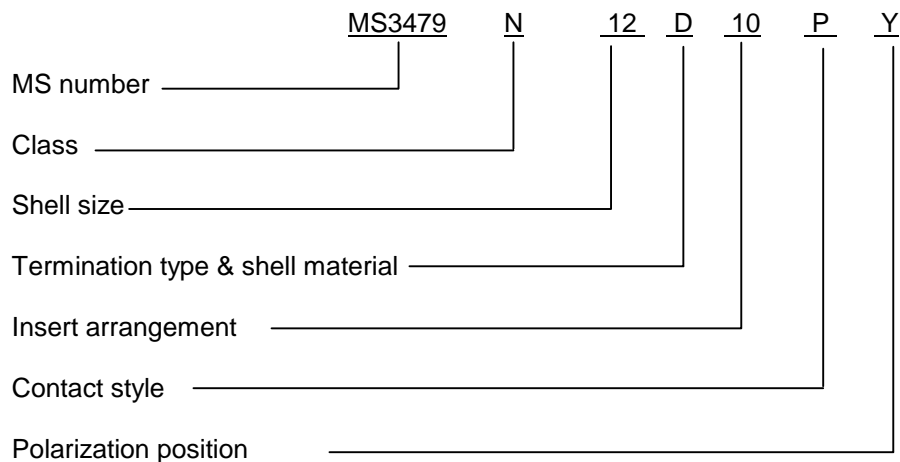
Shell finish: .00001 minimum tin per **ASTM-B545 & ASTM-B339**, over nickel per **SAE-AMS-QQ-N-290**.

Jam Nut finish: Nickel per **SAE-AMS-QQ-N-290**.

Insertion/removal tool **MIL-I-81969/16-XX** to be used with this connector.

Maximum wire diameter permissible: .074 (1.88 mm) for size 20 contact, .103 (2.62 mm) for size 16 contact.

Part or Identifying Number (PIN) example:



CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-018)

Review activities:

Army - AR, AV, MI
Navy - EC, SH

Note: This draft, dated 18 March 2004 prepared by DLA-CC, has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935-4656-019.

INCH-POUND

MS3481A
DRAFT
SUPERSEDING
MS3481
15 December 1998

DETAIL SPECIFICATION SHEET

TOOL, CONNECTOR ASSEMBLY, FOR MIL-DTL-26482 CONNECTORS

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-26482.

Inactive for new design after 15 December 1998.

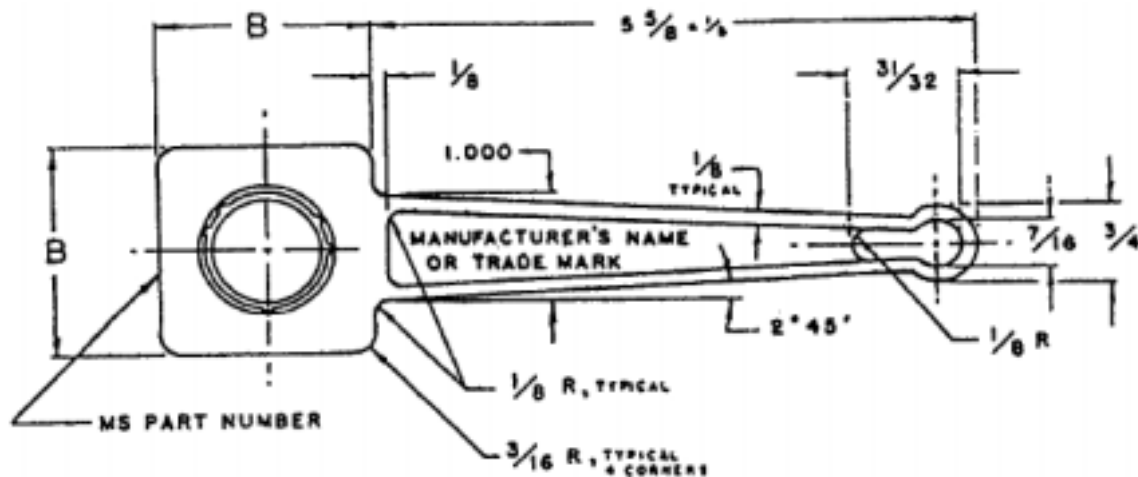


FIGURE 1. Tool, dimensions and configurations.

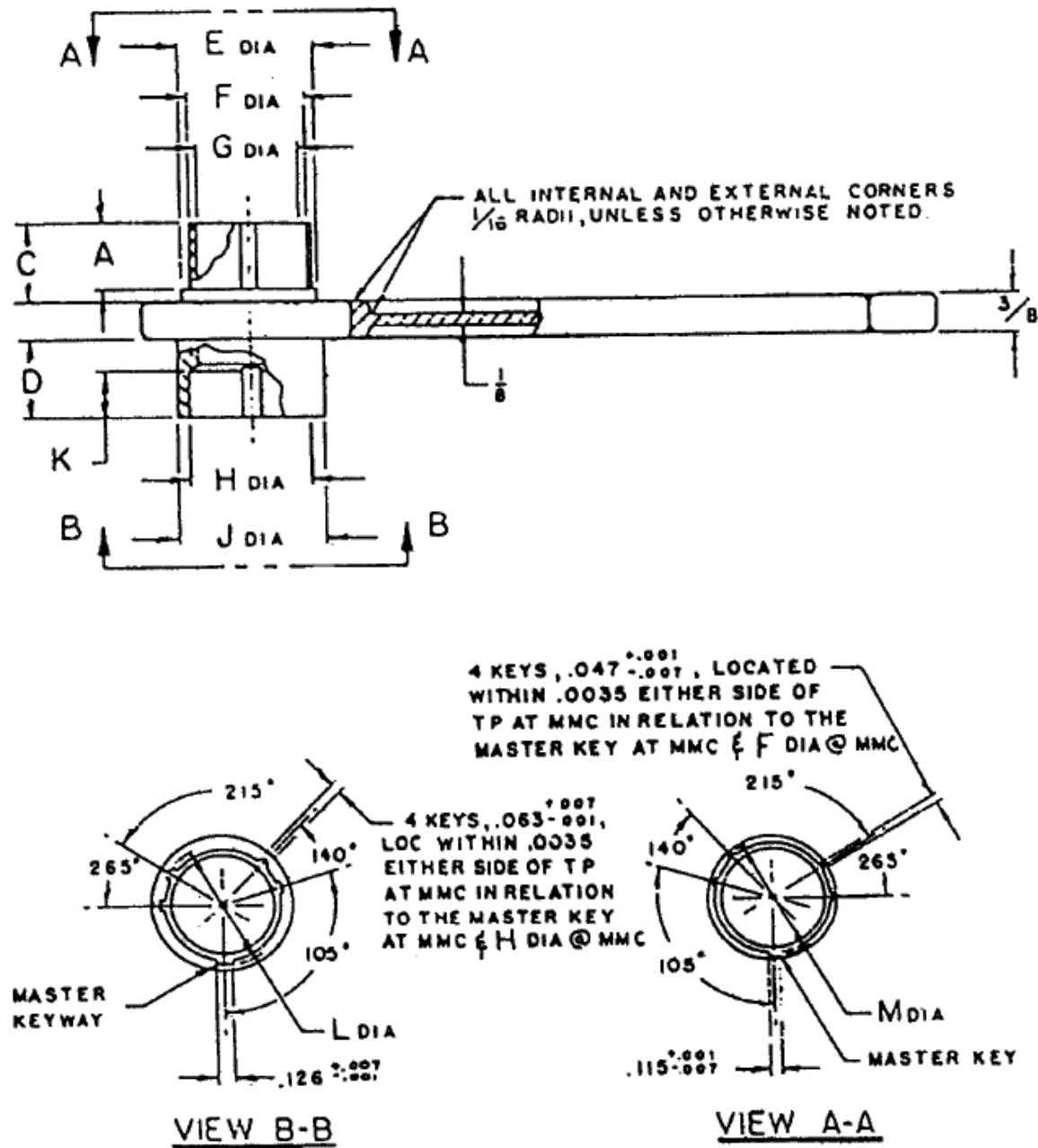


FIGURE 1. Tool, dimensions and configurations - Continued.

MS3481A

Dash number	Shell size	A ± .030	B ± .060	C Approx	D Approx	E dia Approx	F dia + .001 - .005
-08	8	.380	1.250	.410	.455	.473	.357
-10	10					.590	.485
-12	12					.750	.597
-14	14					.875	.722
-16	16					1.000	.847
-18	18					1.125	.947
-20	20	.425	2.000	.495	.540	1.250	1.072
-22	22					1.375	1.197
-24	24					1.500	1.322

Shell size	G dia min	H dia + .005 - .001	J dia + .001 - .005	K min	L dia + .005 - .006	M dia + .001 - .010
8	.292	.362	.473	.281	.412	.402
10	.409	.490	.590		.540	.530
12	.523	.607	.750		.689	.679
14	.648	.732	.875		.814	.804
16	.772	.857	1.000		.939	.929
18	.862	.962	1.125		1.039	1.029
20	.987	1.087	1.250	.343	1.164	1.154
22	1.111	1.212	1.375		1.289	1.279
24	1.237	1.337	1.500		1.414	1.404

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerances shall be ± .016 for decimals, ± 1/16 for fractions. Angular tolerances are TP.

FIGURE 1. Tool, dimensions and configurations - Continued.

MS3481A

REQUIREMENTS:

Dimensions and configuration: See figure 1.

These tools are for use with connectors conforming to MIL-DTL-26482.

Shell material: High grade Aluminum alloy.

Handle material: Die cast Aluminum alloy per ~~ASTM-B85~~ ~~QQ-A-594~~.

Finish: Nickel plate per ~~SAE-AMS-QQ-N-290~~ ~~QQ-N-290~~.

All burrs and sharp edges shall be removed.

Part or Identifying Number (PIN) example:

	<u>MS3481</u>	-	<u>24</u>
MS number	_____		
Dash number	_____		

CONCLUDING MATERIAL

Custodians:

Army - CR

Navy - AS

DLA - CC

Preparing activity:

DLA - CC

(Project 5935-4656-019)

Review activities:

Army - GL

Navy - EC